MARCH, 1965

AIRFIX magazine

FOR PLASTIC MODELLERS

MONTHLY 1'6

IN THIS ISSUE

Full details of six new releases from Airfix

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This 1914 Dennis Fire Engine is still maintained in perfect working order by the manufacturers and is now available as a 1/32nd scale Airfix model. The 144-part kit makes a detailed model with complete chassis, engine, gearboxes, pumps, removable bonnet and detachable body. The separate wheeled escape unit has operating extension ladder. And the whole kit costs only 6/-. There are over 200 Airfix kits covering 13 different series. And at 2/- to 17/6d you can well afford to make all your models *just like the real thing!*

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AIRFIX magazine

FOR PLASTIC MODELLERS

Volume 6, Number 7 **March, 1965**

CONTENTS

COVER PICTURE

Faster flights, in greater safety and comfort, emphasise the need for similar passenger travel facilities on the ground between airports and town centres. BOAC has introduced new Harrington 'Grenadier' bodied AEC 'Reliance' coaches between Prestwick and Glasgow, chosen for their speed, comfort and safety. One is shown here against the massive tailplane of a Boeing 707.

(Illustration by courtesy of AEC Ltd).

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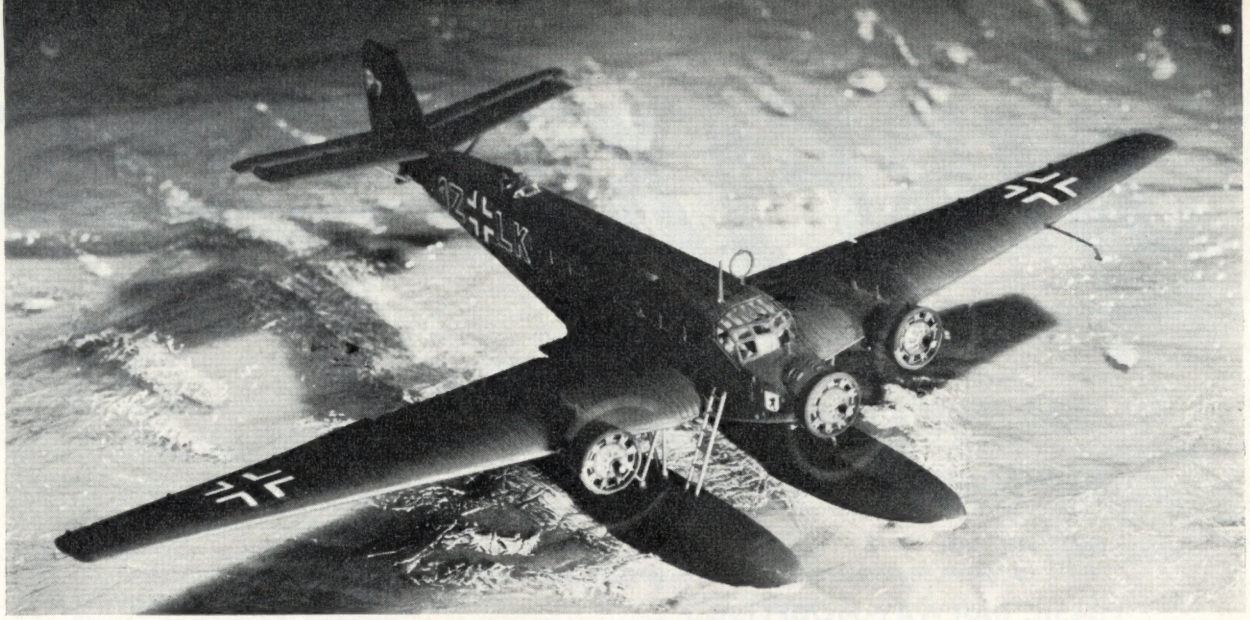


With a wingspan of 15½ inches and a host of detail features, the new 1:72 scale Airfix Ju 52 is an impressive model, selling for 7s 6d. It is possible to build any one of five different versions from this kit—shown here is the Luftwaffe floatplane.

Ju 52, City of Truro and

PLUS NEW ME 109G-6 KIT AND DOG FIGHT DOUBLES SERIES

NEWS FROM AIRFIX

The world's greatest value in construction kits

THIS month we have had to extend 'News from Airfix' to three pages to do full justice to the bumper batch of new Airfix releases. For 1:72 scale aircraft enthusiasts there are the Junkers Ju 52, the revised and augmented Messerschmitt 109G-6, and the Dog Fight Doubles kits of the 1914-18 war. Railway modellers have the OO/HO gauge re-issue of the former Kitmaster *City of Truro* locomotive, while 1:32 scale car fans have now got a model of the Lotus-Cortina to add to their collections.

Largest of this month's Airfix releases is a 1:72 scale model of the Junkers Ju 52/3m. Included with this 111-part kit are details of how to build five different versions of the basic 'plane. Extra parts allow the modeller to produce either an early German civil version, a standard Luftwaffe transport or floatplane, a later Luftwaffe model, or an unarmed Swiss Air Force transport.

The model is moulded in strong silver-grey plastic and embodies a wealth of engraved detail. The 'corrugations' of the unusual Junkers skin are realistically reproduced. Fuselage windows, gunner's windshield and the cockpit canopy are in transparent plastic, and other ultra-detailed mouldings include the radial engine parts, the rear-mounted machine gun and the three crew members. The normal wheeled undercarriage, with its characteristic spats, may be replaced by two large floats. These, with their complicated strut-work and exit-ladders, make a very handsome and unusual finished model.

A new departure from accepted practice is the construction of the fuselage. This is provided in four parts—two sides, roof and floor—and obviates the chance of an unsightly cement mark along the top and bottom of the normal two-part fuselage. Other features of this new 7s 6d Series 5 kit are two-part underslung ailerons, several aerials and a DF loop, revolving propellers, an unusually long pitot tube, louvred engine cover, and external oil coolers and air intakes. Included in the colourfully-boxed kit are an ample tube of cement, a display stand, and a 22-item colour transfer sheet providing both German and Swiss markings.

The slow, cumbersome Ju 52 was first introduced in 1930 as the Ju 52/1m, a single-engined freighter, the well-known trimotor configuration making its debut in mid-1931. When the German Luftwaffe was revealed to the world in 1935, the big Junkers was already standard heavy bomber equipment. The following year they saw action in the Spanish Civil War and Germany entered the Second World War with the Ju 52/3m g4e.

Large numbers were used in the invasion of Norway, Denmark and the Netherlands and the final airborne invasion of the war, on Crete, was spearheaded by large numbers of 'Iron Annies.' Many variants of the basic 52/3m were developed, including the g6e, fitted with a huge de-gaussing ring for exploding magnetic mines, and the major production version, the g7e. This could be fitted with alternative

wheel, float or ski undercarriages and had increased loaded weight.

Following the end of hostilities in 1945, many examples found their way into the civil airlines, BEA being among the European operators. Some are still in the use today with the Spanish and Swiss Air Forces. The markings in the kit cover one of these current Swiss machines, and also a war-time example from 111/KGzbVI.

Powered by three 830 hp, BMW 132T engines, 'Iron Annie' had a top speed of 165 mph. Other equipment varied, but normally one 13 mm machine gun in the open dorsal position was augmented by two 7.9 mm guns fired from the side windows. The Airfix model spans 15½ inches and has a length (with floats fitted) of 11⅜ inches.

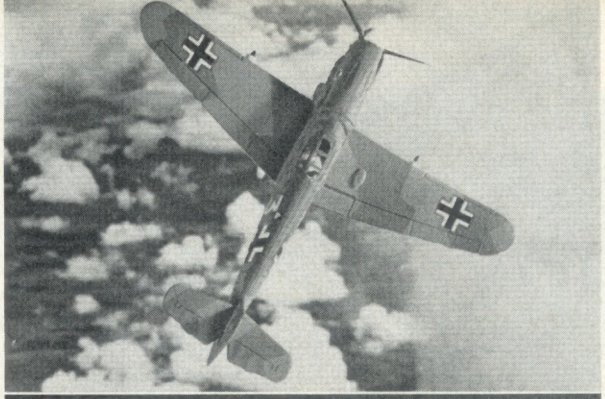
CITY OF TRURO

JOINING the OO/HO gauge rolling stock Series 3, priced at 4s 6d, is a 75-part kit of the 4-4-0 City class loco, *City of Truro*. As with all the Airfix re-issues of the former Kitmaster locos, most parts are identified with numbers or letters stamped into the plastic. While building the model, close attention should be paid to this keying, and to the accurate identification of parts. The modeller will find his task considerably eased if he follows the instructions to the letter.

Lotus-Cortina

Virtually all the detail of the original loco is reproduced in finely moulded black plastic, and several moving parts are featured. The front bogie pivots realistically, while its four small-diameter wheels rotate smoothly and without wobble. The four large driving wheels and simple connecting rods also work realistically and the six-wheeled tender completes an authentic model. Standard working buckeye couplings are included for the motorisation fan, or true-to-prototype scale couplings may be fitted for static display. A swivelling tender coupling is provided, giving a choice of two locations for the tender itself—it may be coupled close-up or allowed to trail slightly.

Moulded detail includes such items as boiler, cab and chassis riveting, hand rails, leaf springs, axle boxes, name plates, tender side panels, ribbed vacuum pipes, 'coal' and driver's controls. Included in this colourfully-boxed kit are full painting and assembly instructions, cement and a six-item colour transfer sheet. This must surely be one of the most colourful locos in the Airfix range. The scheme quoted includes a tuscan red chassis, copper smoke stack, orange panel lines, GWR-green boiler and tender, and gold dome and whistles. This model is definitely one for the painter!



Top: *Airfix have added an entirely new model of the Me* 109 *—the G-6—to their* 2*s series.* **Above:** *Latest car kit is this* 55*-part replica of a Lotus-Cortina, priced at* 2*s.*

Built at the GWR Swindon works in 1903, the *City of Truro* was one of the G.T. Churchward-designed City class locos. The 'Cities' soon earned themselves a reputation for power and speed. The *City of Truro* was the first loco ever to attain 100 mph, on May 9, 1904, while hauling the Ocean Mails special from Plymouth to Bristol. In December, 1912, the engine number was changed from 3440 to 3717.

Finally withdrawn from service in March, 1931, the *City of Truro* was retired to the York Railway Museum. Since that time she has been restored to her 1920 operating condition and is now on show in the Great Western Museum, Swindon. Vital statistics of this famous loco are: length over

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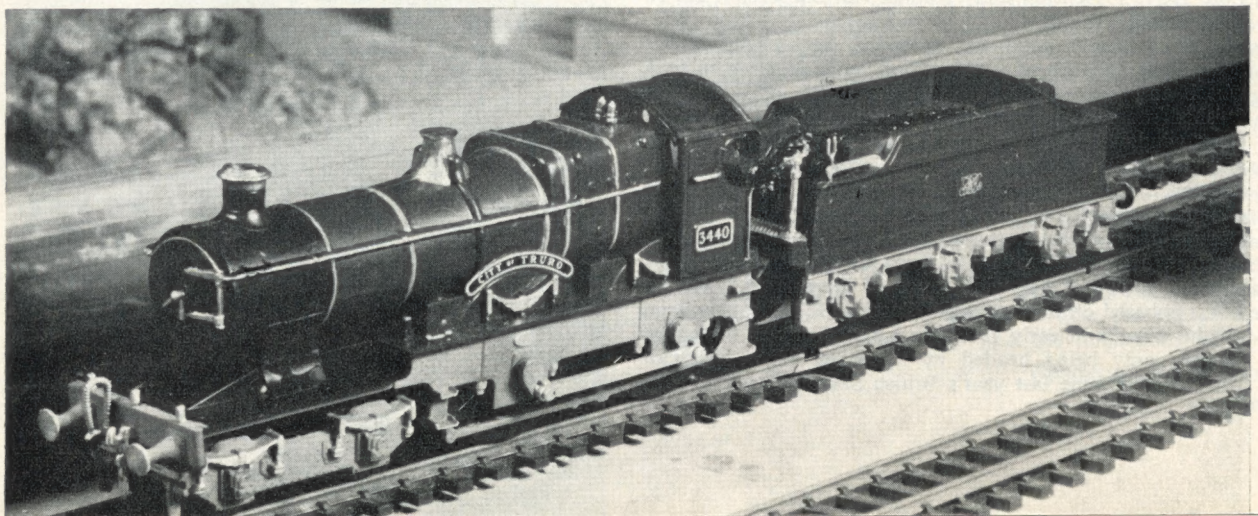
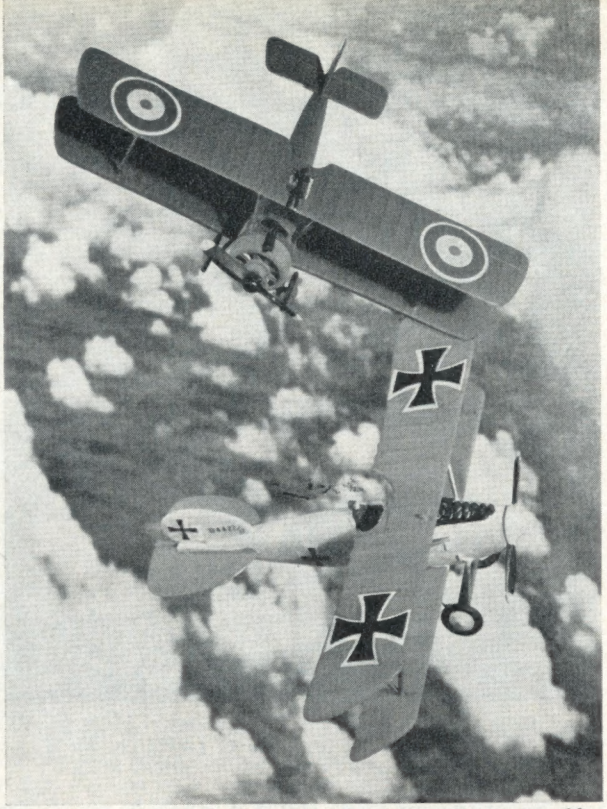
Selling for 4*s* 6*d, a* 75*-part* City of Truro *kit now joins the Airfix range of locomotives.*





Latest new series from Airfix is the Dog Fight Doubles. First to appear are the Albatros and the Camel **(above)** *and the Fokker DRI and Bristol Fighter* **(below, right).** *Both 'doubles' sell for 3s each.*

NEWS FROM AIRFIX—*Continued*

buffers, 56 feet 4¾ inches, driving wheel diameter, 6 feet 8½ inches, and weight (engine and tender) 92 tons 1 cwt. The Airfix replica is 9 inches long.

LOTUS-CORTINA

SLOT-RACERS and 1:32 scale car modellers should be more than pleased with the latest addition to the Airfix Modern Cars Series 1, the Lotus-Cortina, priced at 2s. A replica of one of the latest 1965 cars, the main part of the kit, which has 55 parts, is the one-piece body moulding. This includes such etched detail as doors, door-handles, Ford and Lotus badges, filler cap, number plate, wipers, bonnet louvre and 'Cortina' bonnet bulge. Moving parts are confined to the revolving wheels, and the rather simple Ford front suspension and complex rear suspension are reproduced in some detail.

Interior trim is good, well-moulded seat upholstery and detailed dash panel being the major items. Steering column, wheel and gear lever are separate parts, and give the finished model a very realistic air when seen through the clear windows. Other transparent parts are the head, side and tail lights. All embody some etched detail, the head and tail lights in particular being worthy of note. Bumpers, exhaust, transmission and a good representation of the '65 Cortina grille complete the model. Full painting instructions are provided, together with a choice of three number plates.

Most potent of the wide range of Cortina variants, the Lotus is based on the successful Cortina GT. First appearing on the circuits in early 1963, the Lotuses proved an instant success, only being headed by the huge 7-litre Galaxies. Jim Clark became last year's British Saloon Car Champion driving one of the works-entered machines, while a long list of successes has also been notched up on the Continent and in the USA, the Cortinas thrilling the crowds with their one-wheel-in-the-air cornering.

Externally similar to the two-door GT Cortina, the Lotus-modified machine features a light-alloy, twin-cam cylinder head, two Weber carburettors, a bored-out block, Lotus close-ratio gearbox and various suspension modifications. Maximum speed is about 117 mph, and the car has acceleration to match. Further developments incorporated in the '65 version are the Aeroflow heating and ventilation system, the redesigned grille and extractor louvres behind the side windows. The Ford Cortina modified by Lotus and modelled by Airfix is 5⅛ inches long.

DOG FIGHT DOUBLES

FIRST World War aeromodelling fans should be interested to hear of the introduction by Airfix of a new series of Dog Fight Doubles kits. Each of these colourfully boxed sets contains two of the popular 1:72 scale World War 1 fighter aircraft kits. German and Allied 'planes are matched against one another, so that you have a German Albatros and a British Sopwith Camel in one set, and a Fokker DRI and a Bristol Fighter in another.

Twin instruction and transfer sheets are included in each case, and yet the price of these combined kits is only 3s. Buying the two models singly would cost 4s. An extra feature is a novel three-part display stand, showing the completed miniatures in characteristic aerial combat positions. The plastic mouldings themselves have also been modified slightly and each replica embodies more detail than its singly-packed predecessor.

MESSERSCHMITT Bf 109G-6

ONE of the most popular of the 1:72 scale 2s Series 1 aircraft models and, indeed, one of the first of the Airfix range of plastic kits, has been the Messerschmitt Bf 109G. This has now been replaced by an entirely new 109 kit depicting a later mark, the G-6. Parts are included for two completely different versions, a home-defence rocket-firing variant or the standard cannon-mounting model. A long air-intake is an optional extra for those who want to build a tropicalised version.

A choice of 11 colour transfers covers both tropical and home-based 109s. Several smaller details have also been

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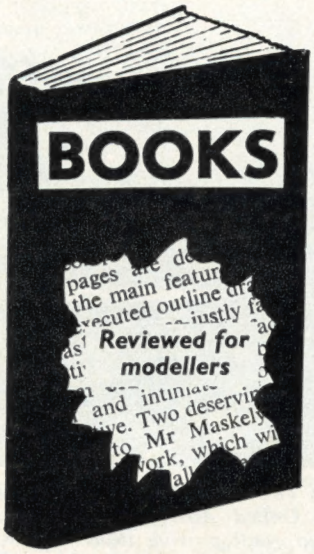
NEW BOOKS



Douglas story

THE DOUGLAS DC-3, *by Len Morgan. Published by Morgan Aviation Books, Dallas, Texas, USA — available in Great Britain from W. E. Hersant Ltd, 228 Archway Road, Highgate, London, N6. Price 22s 6d.*

ONE of the greatest aircraft that ever flew, the 'Dak' is a subject on which almost any aviation writer could fill at least one volume. It is therefore surprising that there are so few works available which give comprehensive accounts of the aircraft, and this book by Len Morgan goes some way to filling the gap.

The work is particularly interesting in the variety of photographs of civil markings it provides. Not every airline that has had DC-3s in service is portrayed, but there are a great many of the more well-known ones which should be of use to the model maker. The military side of the aircraft's career is perhaps rather poorly illustrated. Concentrating principally on the C-47 used by the United States forces, the author hardly mentions the use of the aircraft by any of the hundreds of air forces throughout the world who have or still do depend on the Dakota as their main means of transport.

On the credit side, we were very interested to see reproduced at the back of the book the C-47 handbook, which was given to each crewman who flew the aircraft during World War 2. It makes interesting reading and for this alone the book is worth buying.

Preserving a memory

THE MIDLAND COMPOUNDS, *by O. S. Nock. Published by David and Charles (Publishers) Ltd, 39 Strand, Dawlish, Devon, and distributed by Macdonald and Co (Publishers) Ltd, Gulf House, 2 Portman Street, London, W1. Price 42s.*

THIS, the first in the new series of David and Charles Locomotive Monographs, is a lavishly illustrated publication on 160 large-size glossy art pages. The subject matter is one of absorbing interest. The Midland Railway was the only railway to fully exploit the compound principle in Britain. That this was done so successfully can be shown by the fact that, between 1902 and 1932, 195 of these engines were built and eventually operated with distinction on difficult routes all over the LMS system.

The detailed technical description of the design and its subsequent development is ably told in text, diagram and illustration. Subsequent chapters give graphic accounts of trials, tests and day-to-day running, which probably reached a peak in the heavy Anglo-Scottish expresses. All the Midland Compounds were withdrawn by 1961, but No 1000 is preserved in Clapham Museum and now O. S. Nock's excellent book will help to preserve their memory and give them a well-deserved place in locomotive history. The publishers deserve high praise for an excellent production and further titles in the Locomotive Monograph series are eagerly awaited.

Plenty of steam

GARRETTS OF LEISTON, *by R. A. Whitehead. Published by Percival Marshall and Co Ltd, 19-20 Noel Street, London, W1. Price 42s.*

THE name of Garrett is perhaps best known from the several steam traction engines that were manufactured by this company, and which appear from time to time at rallies throughout the country. It comes as no surprise to know that these handsome machines are but one example of many items of equipment that were developed by this firm as a logical extension of their business as agricultural implement makers. Though the author's main interest is confessed to be steam engines and their associated machines, and these are amply described, the story is primarily concerned with the fortunes of the Garrett business.

There is enough variety in this story to appeal to any reader, and a surprising range of machinery has been tackled at one time or another since the company was formed as a family business 186 years ago. The whole gamut of agricultural machines, from drills to thrashers and portable engines, as well as steam lorries, tractors, trolley buses, machine tools and many other unsuspected products, all feature in the story. The technical aspect of these products is interesting, but no less so are the social and political forces that tugged at the fortunes of the business. Hard times there were as well, but Garretts of Leiston, no longer a family business, are flourishing today and would appear to be set fair to continue so.

An abundance of photographs and drawings, many of them of interest to the modeller, are reproduced in the 319 pages, and 18 appendices give many valuable technical details of some of the most interesting products. An absorbing and extremely well produced book.

NEWS FROM AIRFIX—*Continued*

added that were not present on the original model and the result is a more authentic replica. Price of the kit remains the same at 2s.

The Messerschmitt Bf 109G first made an appearance in 1942. Although better armed, and fitted with a more powerful engine than its predecessors, it was heavier and more difficult to fly. The G-6, modelled by Airfix, was the main production version and, in either home or tropical versions could carry an underwing load of 20 mm cannon mounted in gondolas or 21 cm rocket missiles. A single bomb could also be carried.

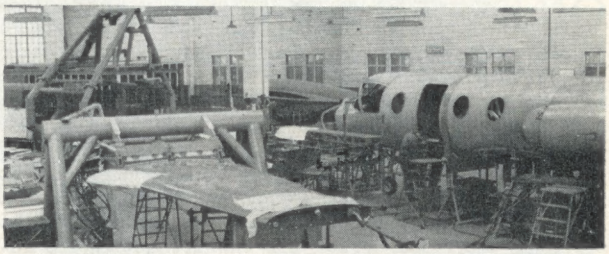
Messerschmitt's 109G-6 was powered by a 1,475 hp Daimler-Benz engine and had a top speed of 390 mph. Range was 450 miles and armament consisted of one 20 mm cannon firing through the propeller boss, two 13 mm machine guns and either two 20 mm cannon or two 21 cm rocket missiles. Span of the Airfix model is 5½ inches.

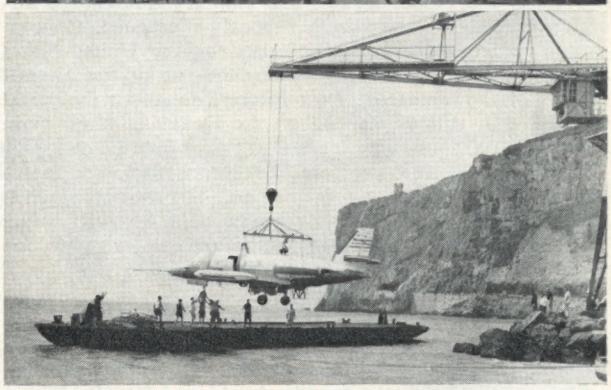
Above: *The BAC-111 now entering scheduled service with British United Airways, seen here at Genoa during the 200-hour route-proving trials.* **Below, top to bottom:** *Production of the second prototype at Piaggio's Finale Ligure factory is well advanced and the aircraft should fly in the spring. A unique method of delivering an aircraft: the first PD 808 being loaded on to a barge bound for Genoa. The Piaggio P 166C, I-PIAS, has several external differences and is designed for sale on the Australian market.*

THE BAC-111 which enters service with British United Airways this month has recently completed a series of route-proving flights to various destinations in Europe and North Africa served by the airline, in order to find out some of the problems and the economics of operating the type. I went on the first of these flights, which left Gatwick on January 25 bound for Genoa. In spite of fog which reduced visibility to 400 yards, (you couldn't see the end of the piers at Gatwick from the terminal building) the BAC-111, G-ASJI, went about its business as if we were flying in the most normal conditions.

The passenger cabin, which has tourist class accommodation for 69, was roomy and comfortable for the one hour 40 minute flight. Passengers boarded the aircraft by the airstairs built into the tail, accompanied by the whine of the auxiliary power unit in the rear fuselage which is used for the aircraft's systems while on the ground. There's no longer need for anything like the number of vehicles normally seen round an airliner, and all I saw at the three stops we made during the tour was the indispensable fuel tanker.

Once in the air, the noise was negligible from the two Rolls-Royce Spey turbojets mounted on the rear fuselage. The noise level at both front and rear of the cabin hardly varied, and the usual din on the flight deck was almost uncannily absent. BUA will be using two pilots and three cabin staff.





Speaking to Mr F. Laker, managing director of BUA, before the flight, I learned that the company intend to run the One-Eleven at 40 per cent lower cost per passenger-seat-mile than the Viscount, which itself broke all economy records on entering service. The One-Eleven is 70 per cent faster and carries 18 per cent more passengers. Mr Laker was confident that BUA would break even the first year of operating the BAC-111, with only a 53 per cent load factor.

I spent two days in Genoa as a guest of BUA before the BAC-111 was back again. After only 30 minutes on the ground it was once more off for London (Gatwick) airport. The speed of this turn-round was extremely high, and was repeated once the aircraft got to its destination. With what seemed only a few minutes on the ground we were off again, this time to Paris (Le Bourget) with another crowd of passengers. 'Juliet India' made the London-Paris leg in just 35 minutes.

In the normal way, the ten BAC-111s on order by British United will have 60-minute turn-round times, a typical day's schedule being round trips to Genoa, Jersey, Malaga and Majorca—7,500 miles in 14 hours flying time.

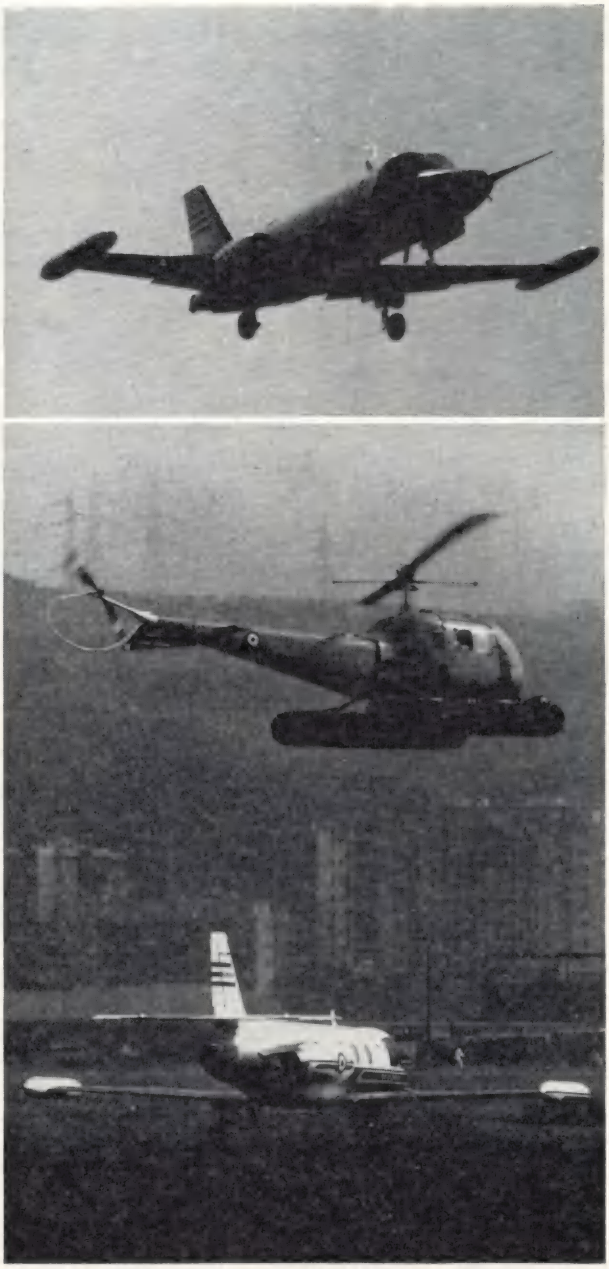
JET-POWERED PIAGGIO

WHILE in Genoa I took the opportunity to visit the factory of the Piaggio company at Finale Ligure, some 40 miles westward along the Mediterranean coast, and the company test airfield at Villa Nova close by. The reason for the visit was to see the progress being made on the production of the Piaggio PD 808 executive jet transport and military trainer. This aircraft, in the same class as the Jet Commander and Lear Jet from the US, the Mystere 20 in France and our own HS 125, has rear-mounted twin-jets and space for two crew members and eight passengers.

The first prototype met with an accident during a test flight, when a seagull came to an untimely end in one of the jets. The pilot landed the aircraft successfully and it had been returned by road to Villa Nova, where the rather battered engine was being changed. The second prototype was well advanced and was due to fly by the spring. Various changes to the vertical tail surfaces to correct stability were also being made to both this and the first prototype before test flying recommences.

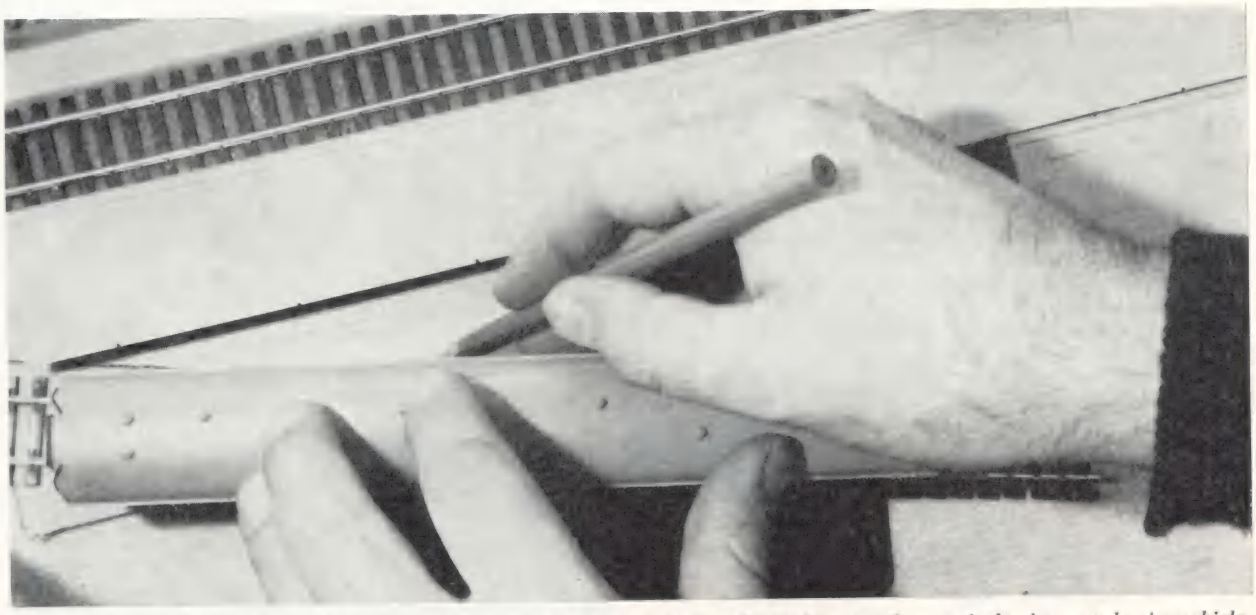
The Piaggio factory at Finale Ligure is situated right on the coast. In fact, a hurried exit from one of the seaward-facing doors could result in a ducking! This closeness to the sea was of great use to the company when producing aircraft such as the Piaggio P 136 amphibian, but it had its problems when the time came to roll out the first PD 808. As test flying was due to take place at Genoa airport, because of its better facilities and longer runway, it was decided to move the prototype by sea on a barge. This rather unique and unorthodox method of delivery was extremely popular with the holiday makers, and resulted in a very quick, uncomplicated and easy journey for Piaggio's prototype, as the aircraft was merely lifted off the barge at its destination, Genoa airport itself being constructed on reclaimed land in the harbour.

Another interesting aircraft seen at Villa Nova airfield was the latest version of the Piaggio P166. This variant, the 'C', was destined for the Australian market and has been converted to take no less than 13 passengers on short journeys. The rear compartment, which housed a toilet in the executive version of the P166, now has five seats and a window on each side of the fuselage. The top tanks, one of the recognition features of earlier versions, have disappeared and the undercarriage has been strengthened, adding fuselage side bulges to accommodate it.



Top: *The prototype Piaggio PD* 808 *first flew from Genoa airport on August* 29, 1964. **Above:** *An Augusta-Bell* 47 *of the Italian Air Force hovers over the first PD* 808 *as it taxies out for take-off.*

At a cost of some 105,000,000 lire each, the Piaggio company reckons to extend the production life of the aircraft by several years. The first flight of the P166C took place on October 2, 1964, and the first production aircraft will go to Piaggio's Australian distributor some time in March. A total of 86 Piaggio P166s have been produced, including 50 for the Italian Air Force.

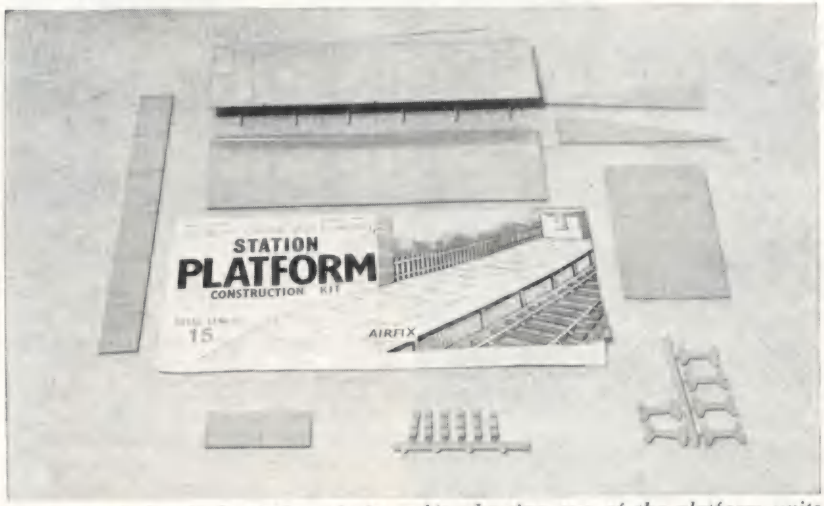


Marking the platform edge inside a curve. Hold a pencil up against the widest overhang of the longest bogie vehicle.

BASIC RAILWAY MODELLING—by Norman Simmons

First steps with the station

Sixth of a regular bi-monthly series catering specially for newcomers to model railways



Contents of the Airfix station platform kit, showing one of the platform units assembled.

THE passenger station is usually the focal point of a model railway layout and, because of its pre-eminent position, it is as well to get your ideas firmly fixed before beginning construction. The first consideration to bear in mind is that the station should be made to fit the type of traffic you wish to operate. If you want to run main-line express locomotives on corridor trains, even if you are assuming the train is nearing the end of its journey in the remoter country areas, you will need to have platforms long enough to accommodate a five- or six-coach train.

A good yardstick for platform lengths in OO gauge is 10 inches per coach plus 10 inches for the locomotive. By this token a main-line station ought to have platforms at least five feet long. The longer the better, of course, but as in so many things connected with model railways we have to compromise and temper our enthusiasm by the space we have available.

Careful spacing

This applies also with regard to the number and width of platforms. The clear unobstructed width of a single platform should measure at least 1½ to two inches. A two-platform station, one platform either side of a double-track main line, will therefore require a space at least seven to eight inches wide on your baseboard. This is with-

out making allowance for station buildings, which if added either side will possibly consume another four to five inches. Therefore, it is not unwise to allow at least 12 inches for the width of a main-line station.

This is yet another reason why we so often model branch lines. A single platform long enough to take a three-coach train is all that is needed, and this can be accommodated in a space not much more than three feet by six inches.

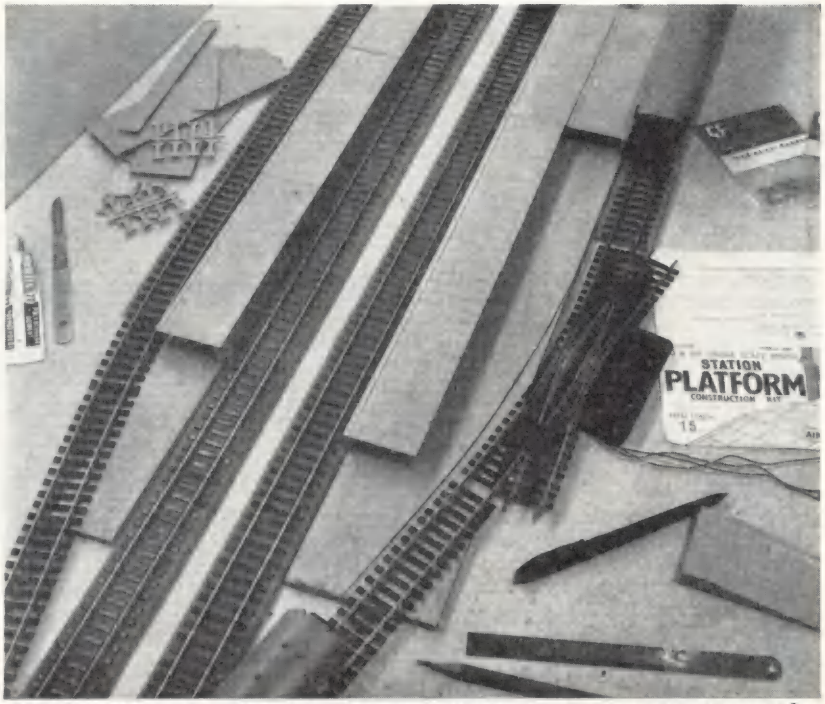
Such basic thoughts as to whether it is to be a terminal or through station must, of course, be decided at the layout planning stage. The difference is obvious and hardly needs elaboration, but a terminal station somewhere on a layout does provide a place to which to send your trains. It also provides scope for interesting timetable operation.

Variety of wagons

If you have decided on a through station, a small bay platform can provide the terminus for a branch line service operated by an auto train, diesel railcar or railbus. A bay platform can also be used for storing rolling stock, empty coaches or parcels vans. End loading facilities—road access to allow vehicles to run on and off or into and out of wagons—can also be incorporated at the end of a bay platform, and will provide an excuse for operating a wide variety of suitable wagons.

For constructing platforms there is nothing better than the Airfix station platform kit. Each kit contains parts to make two platform units, each six inches long by 1¼ inches wide, and a sloping ramp three inches long and 1¼ inches wide. Also included are six connecting links to join the platform units together, either end-to-end or side-to-side. Notice that when the platform units are connected together side-by-side, a narrow gap is left between. Don't worry about this. It makes a good representation of the narrow cast iron drainage channel so often found in wide paved surfaces. The contents of one of the Airfix kits with one of the platform units assembled is illustrated this month.

The most critical point to watch when constructing station platforms is the distance between the platform edge and the running rails. For a single track the edge should be 11 mm from the nearest rail, but will need to be more on curves due to the overhang of bogie rolling stock. The sharper the curve and the longer and wider the rolling stock the wider the gap needs to be. The exact measurement can only be found by trial and error, and should be checked thoroughly at all stages of construction. Use the widest and longest vehicle and run it back and forward by hand, taking up all possible play on axles and bogie pivots, and at the same time feel for any tight spots along the platform edge.



Planning the layout of station platforms. At this stage of construction neither the tracks nor the platforms are fixed in position, but are laid out to test clearances.

One way of marking out platforms on curves is to hold a pencil against the widest part of a coach and draw a line on the baseboard as you push the coach through the curve. This method is shown in one of my illustrations. The Airfix platform top can then be cut to the required shape and the front wall curved and cemented in place. The platform edging strip can be represented by a strip of thin plastic card.

With the Graham Farish Formoway track and foam plastic ballast I am using, I have found it necessary to build up the height of the Airfix platforms. They should be at least a scale three feet above rail level, that is 12 mm with OO gauge. I have found that 3/16 inch plywood is just about the right height, and I have mounted my platforms on strips of this material. Hardboard or several thicknesses of cardboard will do just as well, of course. A piece of 3/16 inch plywood cut 3⅜ inches wide gives exactly the right clearance when using a double-width Airfix platform laid between two lengths of straight track.

Isolating sections

While you are constructing your platforms, give a thought to the train movements you hope to carry out. For instance, if you are installing a bay platform, make sure you have incorporated an isolating section in the track so that the locomotive or railcar can be switched out of circuit after completing its run. Similarly, with a through station it is useful to have an isolating section where the train engine is likely to stand so that a shunting engine can run up to attach extra coaches or vans or, alternatively, take rolling stock off the end of the train.

The platforms are, of course, but a part of the station: a major part initially, but once they are done you have wonderful scope for further construction, which we can describe in subsequent articles.

Wheelspin

BY BERT LAMKIN

A spacious circuit

PREVIOUS articles in this series have put the accent on how to utilise the minimum of space when building a slot layout. Now, just for one month, let's go to the other extreme, and consider a circuit, using standard Airfix track, where there is virtually unlimited room available.

If you belong to a club, then some of those long trestle tables that are usually part of the furniture could be used for the base. Given fine weather, it could even be installed on the lawn, which would provide good cushioning for the cars that 'lost it'. Although shown here as a two-lane track, it could be four-lane with little modification.

Three considerations govern the design—to provide a long straight, a twisty section and an out-of-sight section. The circuit consists of 19 double-length straights, six standard straights, two half-straights, 33 standard curves—inner curves on a four-lane layout—two crossovers and a lap recorder section.

The straight is nearly 13 feet long, allowing the cars to get really motoring. This could be further lengthened by inserting straight units at points A on the drawing.

The 'twisty' section incorporates both an overhead crossing and a crossover, calling for skilful negotiation. At the other end, the rectangular loop is for an out-of-sight area. There is no attempt to landscape the layout or to add trimmings, the idea being that it can be dismantled after use, although the overbridge could, with advantage, be mounted on a hardboard base.

Construction

Elevated units are supported by standard Airfix bridge and banking supports. These clip one within the other to give variation in height. Always place them adjacent to the track joints initially, and then add others for extra rigidity. Evostick will fix the plastic pieces to the hardboard.

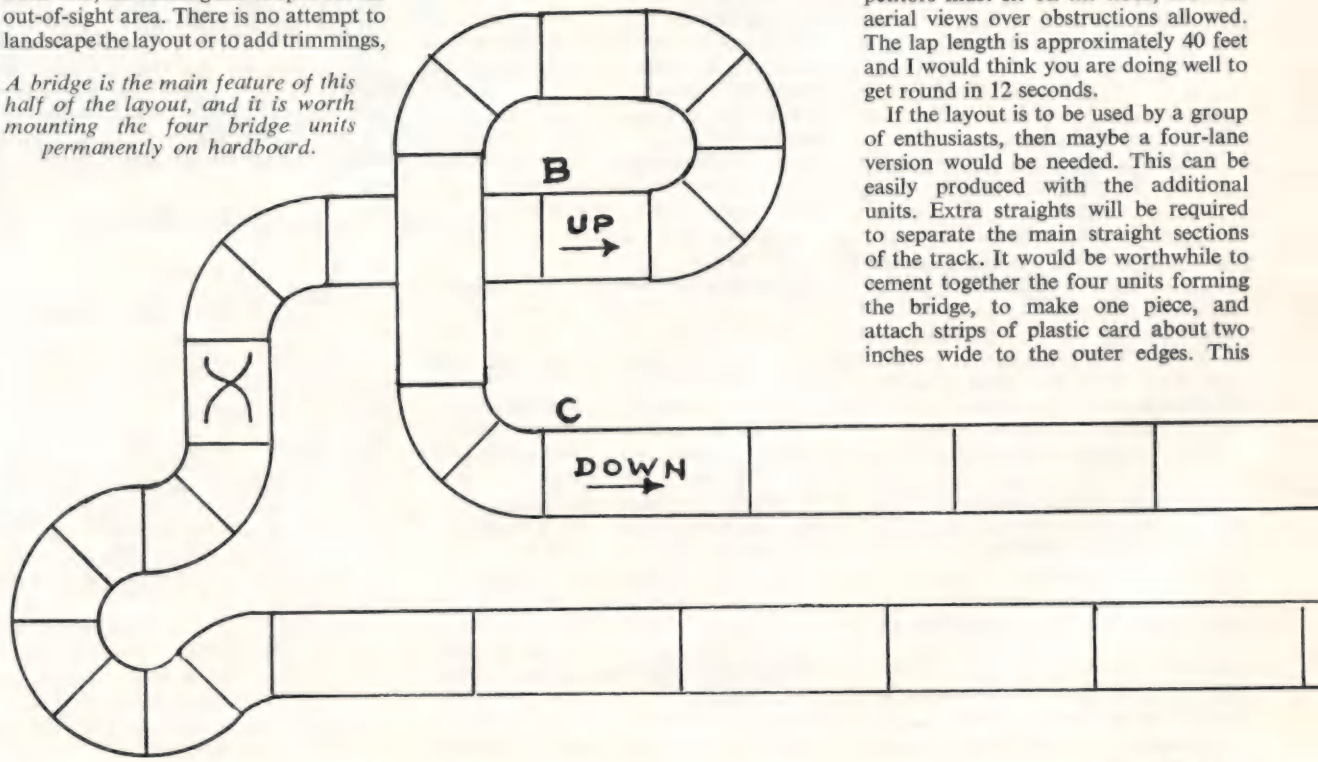
The incline up and down to the actual bridge is shown at B and C. The slope down should be carried along three of the straight units. This will aid acceleration of the cars and call for a delicate touch through the 'S' bend. Along this section the two half straights are fitted, then comes the loop with the other crossover. By using two crossovers at opposite ends one equalises the slot and lane lengths and gives equivalent conditions to both cars. Within the loop, a mound of boxes or books should be built to a sufficient height to mask at least one corner and the crossover. Not being able to see this part of the track should add to the excitement.

The start and finish line is situated about halfway along the main straight, and here the lap counter unit can be inserted. You will be far too busy driving to count the laps. Barrier rails on the elevated part are advisable, but on the other bends the new outer borders could be used with advantage, as both cars traverse the outer slots.

Incidentally, if the circuit is laid directly on the floor, then the competitors must sit on the floor, too—no aerial views over obstructions allowed. The lap length is approximately 40 feet and I would think you are doing well to get round in 12 seconds.

If the layout is to be used by a group of enthusiasts, then maybe a four-lane version would be needed. This can be easily produced with the additional units. Extra straights will be required to separate the main straight sections of the track. It would be worthwhile to cement together the four units forming the bridge, to make one piece, and attach strips of plastic card about two inches wide to the outer edges. This

A bridge is the main feature of this half of the layout, and it is worth mounting the four bridge units permanently on hardboard.



would prevent sagging and avoid the use of extra vertical supports.

The same treatment with the two inclines would help to give a smooth transition between levels. Possibly the most satisfactory way is to mount the inclined sections on to sub bases. These would then provide the anchorage for the bridge. If the vertical supports are cemented to the track as well as being glued to the hardboard, the complete unit will be quite rigid. You will certainly need this arrangement if you are using the lawn.

Hill-climb hints

Reader W. J. Campbell, a slot racing enthusiast from Northern Ireland, tells us that he has converted print into practice. He has incorporated the switching section that was originally projected for the pits road, and which was described in our April, 1964, issue, with a hill-climb, thus producing a racing and hill-climb circuit combined. As I have already mentioned, the two factors that constitute the difference between racing and hill-climbing must be borne in mind if you want to be truly competitive. So obviously this Irish enthusiast will be adding a timing device to his layout.

While on the subject of hills, the climb featured at the Racing Car Show was constructed so that at least one third of the road surface was visible, and in this portion I introduced a 'kink'. The excitement this caused among the competitors who endeavoured to produce a record on their first run was quite something. I believe a hidden hazard is worthwhile—hence the masked section in the circuit described in this issue. So if you do decide on a hill, try to get the top well above eye level, which will add to the interest.

One point to remember if you are only using the ascent is to avoid the cars running on to a dead section that is curved. Sudden loss of power when the car is flat-out will invariably invert it. So, if it has to be curved, allow for this part of road to have a reduced voltage on its pick-up rails or conductors. If it is possible to slightly bank the actual surface that will help, too. An old radio type of rheostat would do to regulate the volts. On the other hand, if you do not have less than 24 inches of straight after the finishing line, then the cars will come to a standstill on all four wheels.

Another point to remember, particularly about the upper regions, is keeping the conductor rails clean. This is where we can borrow an idea from our railway friends—a track cleaning vehicle. So on the assumption that you will have tried the normal methods by next month, a description of such a device will possibly be welcome. If our experience at the Show is anything to go by, a hill-climb is very popular; some of the ladies who were shy about circuit racing tried their hands quite successfully. This aspect may be useful in getting permission to build in the lounge—after all you won't get anywhere without madam's co-operation! Finally, I would stress that the Airfix track lends itself very readily to modification—a small Eclipse saw and tube of cement will take care of that odd length.

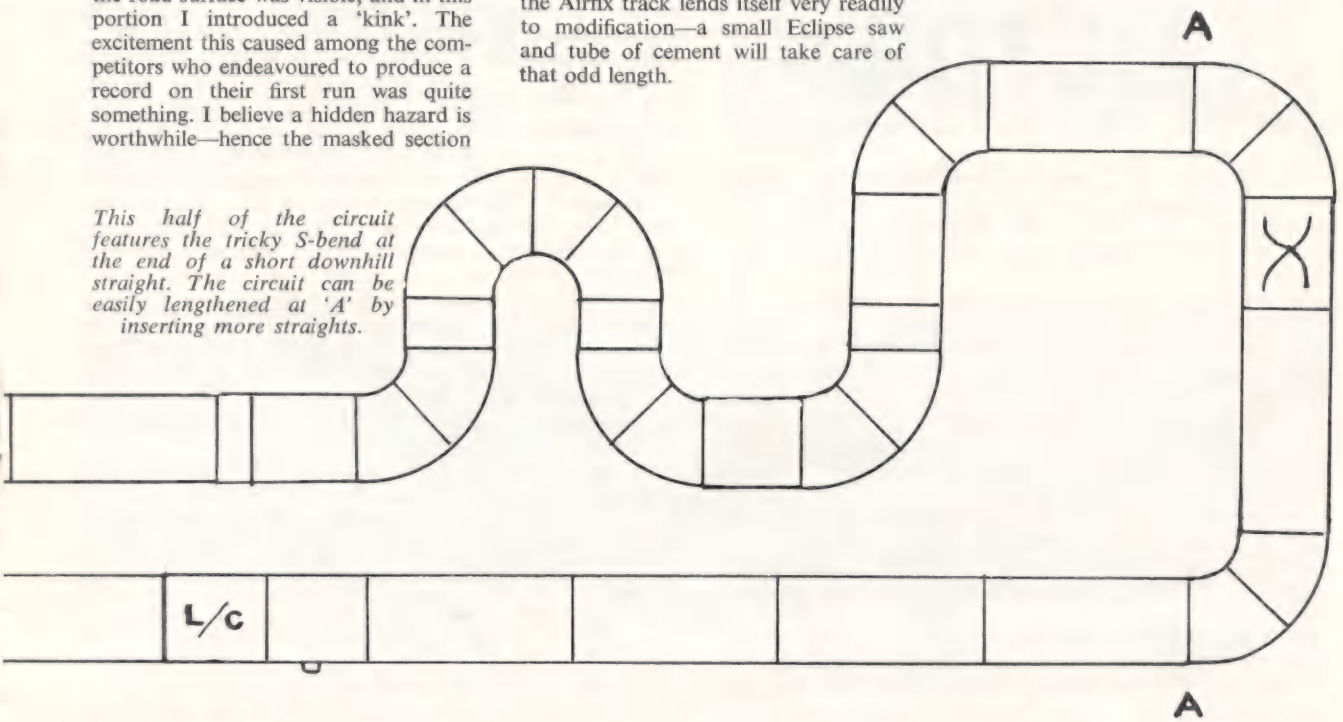
October date for London Model Car Show

MINIATURE motoring enthusiasts will be pleased to hear that the Auto-Model Club is to present a Model Car Show, coinciding with the Earls Court Motor Show in London next October. It will be held in the Mayfairia Rooms, London, W1.

The show will have two special features, both built by the club's Technical Adviser, Bert Lamkin—a regular contributor to AIRFIX MAGAZINE. One will be the miniature hill-climb layout featured at the Racing Car Show last January, and the other will be a special motor racing circuit.

It is hoped that all the leading British manufacturers will be exhibiting at the show and further details will be announced later. Interested exhibitors are invited to contact Ian Smith, at 347 Goswell Road, EC1.

Other model motoring news is that Micklegate Model Shop, of York, has formed a model car club. Premises have been found and it is hoped shortly to start a circuit to ECRA standards. Those interested should contact Mr T. Normanton, at the Monk Bar Model Shop in York.



This half of the circuit features the tricky S-bend at the end of a short downhill straight. The circuit can be easily lengthened at 'A' by inserting more straights.

Plastic Modelling by Mike Bryant

USING THE AIRFIX MOTOR

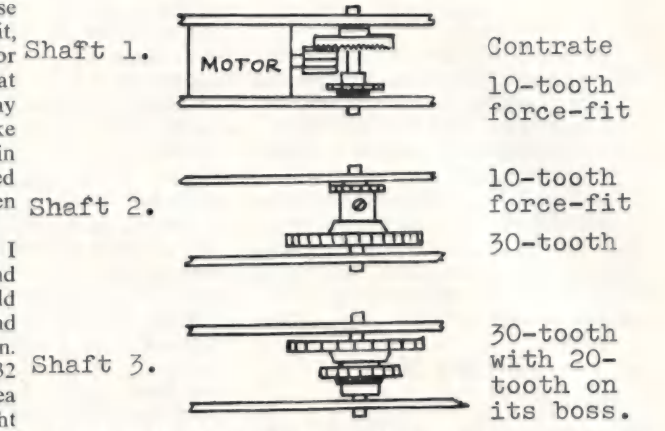
TIME and again readers ask, 'Why don't you always use the Airfix motor in your articles?' On the face of it, this is a perfectly reasonable question, because the motor is a compact, powerful little job, in plentiful supply at a price less than most similar motors on the market. In my opinion, however, it has one drawback which does not make it the easiest to use: there is no simple way of fixing it in place. I know it was designed to drop into specially moulded mountings in the Airfix cars, but this does not help when you want it to fit into the Prairie Tank or into a crane.

Soon after the Airfix motor racing sets first came out, I had a long correspondence with the manufacturers and suggested that motorising kits using their own motor should be brought out; other manufacturers had done this, and they seemed popular enough to justify their introduction. Unfortunately, except for the motorisation kits for 1:32 scale cars, nothing has come out. However, even if the idea is not a commercial proposition, perhaps readers might find it useful to try a 'one-off' job.

Briefly, my idea was to have a mechanism 'pod', to hold the motor firmly in place, with a number of possible power take-off shafts with a choice of gear ratios. Quite obviously, the main 'pod' would be best produced as a plastic moulding, with the existing pinion on the armature shaft meshing with the crown wheel already used in the racing cars. All that was wanted was a nylon or brass spur gear to mesh with a similar pinion to that already on the armature shaft, so that any number of gear reductions could be made with a combination of these gears. The ratio of this new gear to the small pinion would have been about 3:1, and the kit would also have contained a number of small brass or nylon bearing bushes to take wear of the gear shafts on the mechanism sideframes.

I have sketched the general idea. Quite obviously you would have assembled the kit to provide the drive you wanted, and any unwanted portions of the sideframes could have been cut away. The gear shafts would probably have been 3/32 inch diameter rod, but it would have helped railway modellers if the new spur gear had been available bored to fit a 1/8 inch axle as well, as this diameter is standard for most OO and TT3 systems.

This suggestion needed three things not readily available: the mechanism 'pod' or sideframes, the bearings and the spur gear. Is it not possible to make these ourselves, and produce our own mechanism using other sources of supply?



Details of the gearing on the shafts, as explained in the text.

The mechanism sideframes can be cut from plastic sheet (0.03 inch is quite thick enough). The bearings can be short lengths of 3/32 inch internal diameter tubing, available from most model aircraft stores. The gearing is a bit more difficult, but that available from Ripmax can, with care, be used. They have rather long brass bushes and for loco motorisations their sizes are not always the most convenient. These difficulties and ways of overcoming them are perhaps best dealt with in some detail.

These sideframes are just wide enough to clip over the mainframes of Airfix locos, for example the J94 Saddle Tank, so build the mechanism to contain all the axles in the gearbox *except* the final driven axle. The mechanism 'pod' can then be cemented over the loco mainframes and the mesh of the final gears adjusted before the cement sets. The two mechanism sideframes should be marked out and cut from two thicknesses of plastic sheet lightly cemented together outside the outline of the finished sideframes. The bearing holes should be drilled first and then the sideframes cut out. The mechanism is assembled with the spacers A, B and C (B and C keep everything square) on a dead flat surface: test that there is no twist in the assembly by running a length of rod through any pair of bearing holes—a length of a foot will soon show up any lack of squareness in the assembly. The motor is then slipped in place and the spacer D spot-cemented in place. Should the motor have to be withdrawn for adjustment at any time, spacer D can be unstuck with the point of a knife.

Shaft 1. This is a short length of 3/32 inch rod with the contrate and a 10-tooth Ripmax *force-fit* gear—note the position of the gear bosses and the washer between the spur gear and the sideframe. *Shaft 2.* Another idler shaft containing a 30-tooth gear and a 10-tooth force-fit. About 1/16 inch will have to be sliced from the plastic boss of the 10-tooth gear. If it then slips on the shaft, Evostik it to the brass boss of the larger gear. *Shaft 3.* Tap the brass boss out of a 20-tooth gear over the open jaws of a vice—they come out quite simply—and then press the plastic part of the 20-tooth gear on to the brass boss of a 30-tooth gear. You will have to take out the set-screw first. This 20-tooth gear will engage with another 20-tooth gear on the loco axle. This gear has to be drilled out to take a 1/8 inch axle and is modified as follows. The white plastic boss opposite the set-screw is cut away, the gear is tapped along the boss until 1/8 inch of the knurled part of the brass boss is showing and this 1/8 inch is then cut off. The set-screw can still be used to

lock the gear on the axle because it now comes in the cut-out in the plastic boss.

This is a long gear train, involving a lot of gears and bearings, necessitated by the need to get the ratio down to 27:1 to provide power and a reasonably steady speed, and by the need to finish the gear train with a 20-tooth wheel —its 15 mm diameter means that it can be used with the smaller diameters of driving wheels.

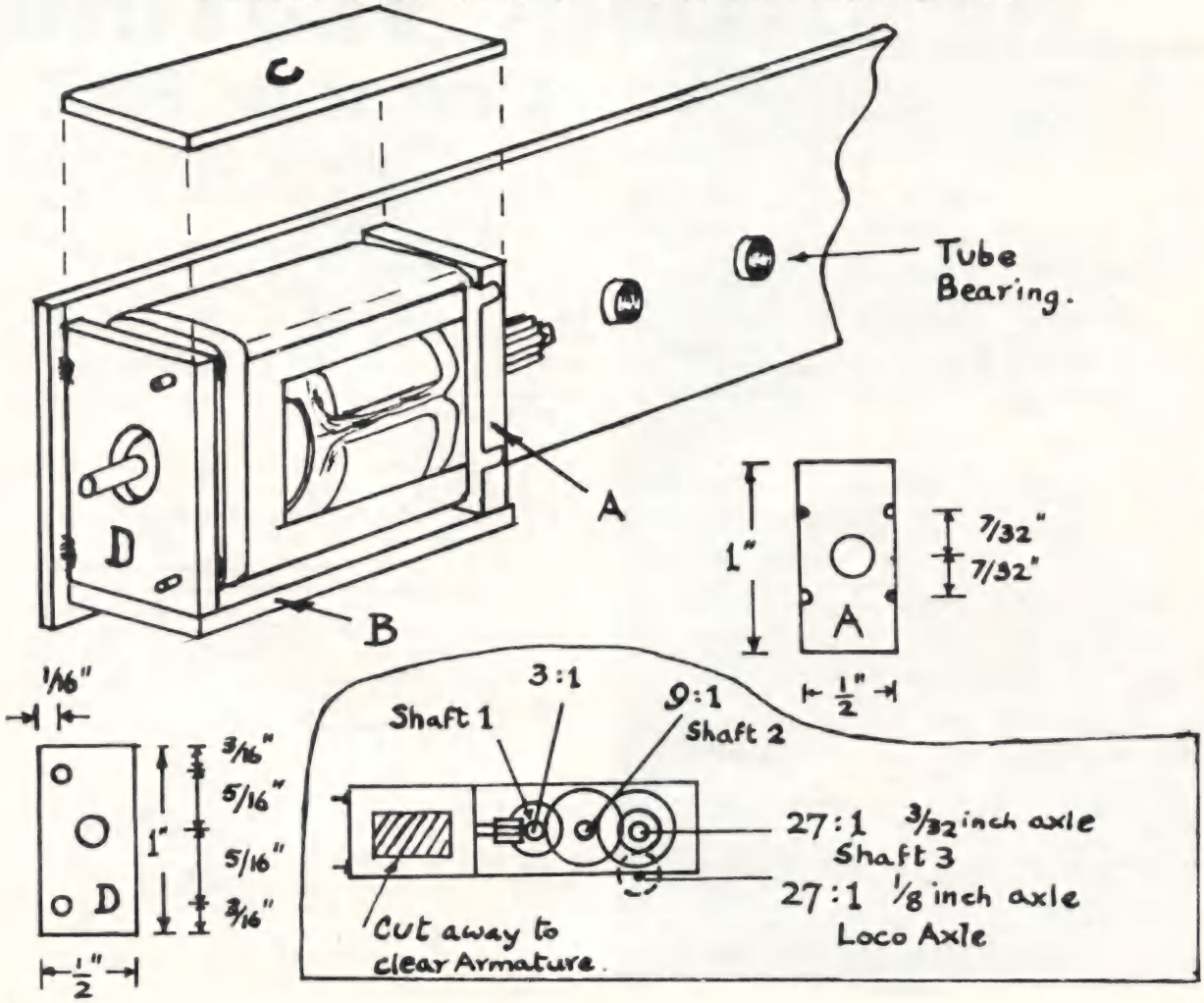
WORM GEARING

The friction of all this spur gearing must mean a certain loss of power — is it therefore possible to use the Ripmax worm and worm wheel sets, which, at one step, give a reduction of either 36:1 or 40:1? The worm wheels are of 20 and 22 mm diameter, respectively, so if your loco has driving wheels bigger than these you can get away with a simple worm and worm wheel drive, the worm wheels being drilled out to take a 1/8 inch axle. The worm to use is the one with the brass boss and set-screw—there is just enough shaft protruding from the motor at the end with the brushes to be able to lock the worm in place. Great care should be taken, however, to make sure that the worm does not touch or interfere with the brushes or their springs, and it would be best to interpose a thin fibre washer between them and the worm to avoid any accidental 'shorts'.

However, for smaller driving wheels, such as those on the J94, we have to use the 20-tooth spur gear trick again. Take a 40:1 worm wheel, remove its set-screw and tap its boss through the gear until 1/16 inch of the knurled brass boss is showing. Then tap out the brass boss from a 20-tooth gear, shave off 1/16 inch of the *plastic* boss and force the gear on to the boss of the worm wheel. The 20-tooth gear on the loco axle is treated as I have described before, *ie* drilled out 1/8 inch, and centralised on a shortened brass boss.

The best way of doing the rather delicate process of drilling out the bosses to 1/8 inch is by placing the gear face down on a piece of scrap wood, holding it in place—while the drilling is done—by a series of household pins driven into the wood round it, and engaging the teeth to stop it turning.

Section of the motor 'pod' with one sideframe removed to show motor mountings and the shaft bearings. Inset is shown schematic layout of motor 'pod' and shafts. Note the different gear ratios.



Military modelling
by C. O. ELLIS

TANK TESTING

a visit to the FVRDE

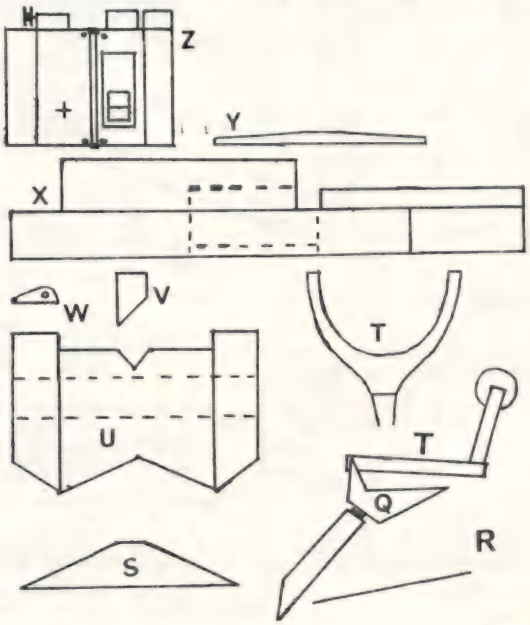
DOWN in Chertsey, Surrey, if you ever pass that way, look out for signposts bearing the cryptic legend 'FVRDE'. If you follow these across the typical Surrey heathland you eventually find yourself in a country lane between two high fences, with security men at the gates and plenty of notices warning that it is a prohibited area. This sprawling country outpost, not especially significant from outside, is the true breeding ground of all British tanks and military vehicles, for FVRDE stands for Fighting Vehicle Research and Development Establishment.

Civilians, other than employees, are not normally allowed inside these high walls, where work on the next generation of tanks and much else of a secret nature is being carried out. But FVRDE is about the only place to find all the variants of the Centurion together, so it was with considerable delight, therefore, that I was allowed to visit this establishment one morning recently to photograph and inspect a line-up of these vehicles before modelling them for AIRFIX MAGAZINE.

The amount of activity inside FVRDE comes rather as a surprise. From the road, all seems tranquil, almost sleepy, but once on the test track inside, where the Centurions were parked, the ear was assailed by a thunderous symphony of sound as tanks roared and clattered past at speed in company with all manner of 'soft skin' vehicles which added their own less raucous engine noise to the proceedings. With its undulating two-mile circuit, a sylvan setting and a well-made surface, this test track is not unlike a sort of military Brands Hatch. Vehicles race by—but not in competition—overtaking and being overtaken. I saw a Chieftain lapping impressively at top speed as she underwent an exhaustive endurance test, while at the other end of the scale a one-ton truck groaned laboriously along in bottom gear as scientists studied recording equipment installed in the cab. For here they experiment with everything from a new vehicle design to a new type of driver's seat, and it is on this test track, or on two outlying cross-country courses at Bagshot and Long Valley, that trials of new equipment are conducted under what are virtually the severest service conditions likely to be encountered.

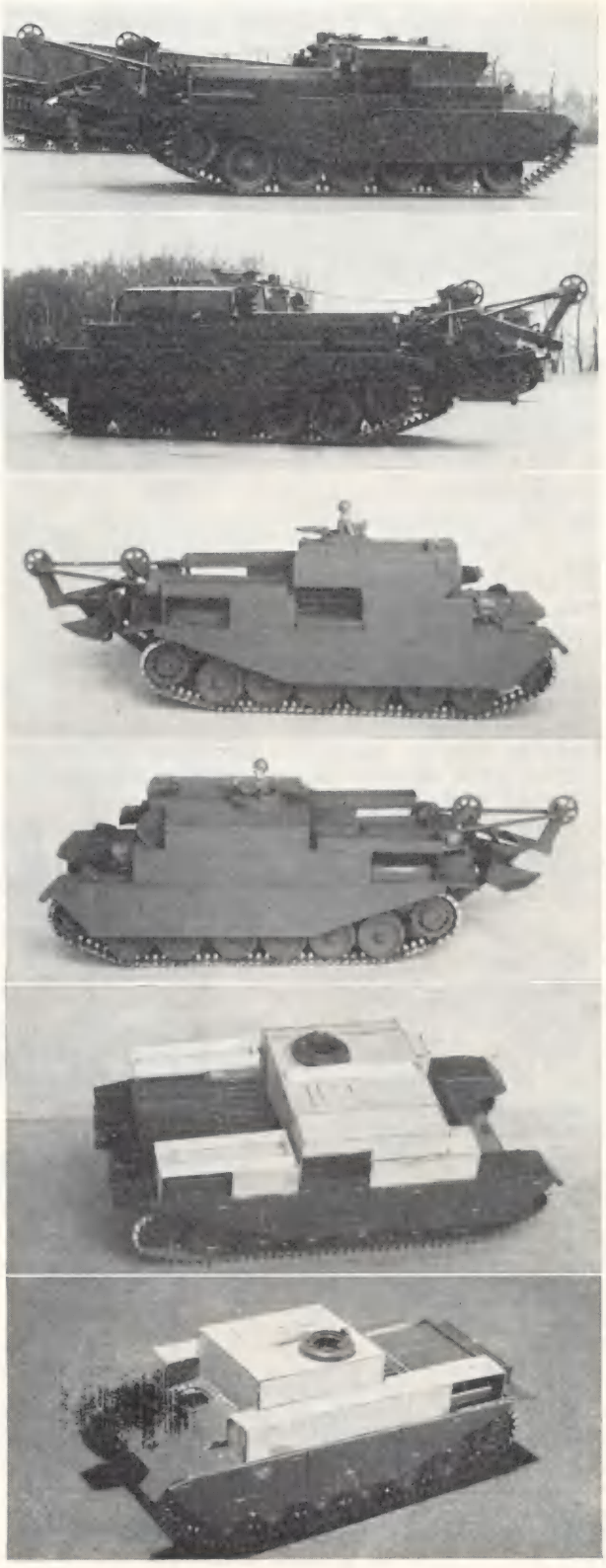
Specialised features inside the FVRDE test track include a wading pit, tilting platform, suspension tester and various other devices designed to challenge a tank's endurance to the limit. An incongruous sight among this military activity was a red London Transport Routemaster bus which joined the circuit and lapped happily with the soldiery for hours. My romantic notion that this might be 'Old Bill', reincarnated in modern guise 50 years after Mons, was shattered when they told me that London Transport was one of many civilian concerns which use the FVRDE test facilities from time to time. Actually the Routemaster was testing fuel consumption!

After watching a bridgelaying demonstration—which is another story altogether—I was able to take an exciting ride in a Centurion ARV out on the circuit. It was quite a thrill as the driver pressed the starter and the 'Meteor' engine spluttered and roared into life. In an instant the vehicle was transformed from a lifeless steel titan to an



Key to drawings: *(Z) Plan view of superstructure top, showing cupola, hatch, cable reel and stowage box positions. Half full-size. (Y) Side plate for tow rope channel—two required. (X) Side elevation of stowage boxes. Dotted lines show gap on right side only. (W) Lug for front jib—two required on front horns (this jib is not carried on the vehicle). (V) Side for right-hand front stowage boxes. (U) Template for anchor spade. Score and bend upwards on dotted lines. (T) Lower legs for outer jib. (S) Inner jib support. (R) Earth anchor and jib. Two spade arms required and two ribs (Q). Lower line shows horizontal plane in relation to drawing.*

Right, top to bottom: *Two views of the Centurion ARV at FVRDE, and the completed model from similar aspects. Stages of construction* **(bottom two pictures)** *show how superstructure and stowage boxes are built up.* **Left:** *Contrasting vehicle is the deep-wading BARV, described in model form in our November,* 1964, *issue.*



eager vibrant steed, impatient to be under way as we clambered aboard over the glacis plate where the driver could sight us before moving off. With a shudder and a lurch the ARV was on the move, swaying almost imperceptibly from side to side as it gathered speed and the driver headed for the test track.

From the crewman's hatch, where I was perched, the noise was indescribable. Now I appreciate the full value of the intercom, for the commander—a mere foot or so away in his cupola—was quite unaware that I was talking unless I resorted to this useful aid. At high speeds, also, a fierce airflow adds to the confusion, and even on a short exhilarating trip it is easy to see that living in a tank for several days at a time, as might happen in battle, must be a lot less enjoyable. With a visitor on board they do not risk any rough stuff, and all too soon the ride had come to an end. There was still a long way to go, however, back to the tank hangars in the other half of the establishment. This took us over the Bailey bridge which spans the public road; odd how flimsy these bridges look when you approach them in a tank! We made it—despite the creaking as the structure stood up to nearly 50 tons of Centurion—and were soon passing between the extensive workshops, laboratories and hangars which are the feature of this side of FVRDE.

The vehicle parks here are a spotter's delight with everything from veteran Diamond T tank transporters of World War 2 fame to the latest Chieftains and Hornets. I even saw a Jagd Panther and a Panzer 4, both looking forlorn and undignified without guns as they stood in the improbable company of Centurions. These ex-German vehicles still sported their original sandy finish and markings after 20 years and the comparison with the modern British tanks which surrounded them brought my visit to a suitably nostalgic end. Life hasn't been the same since!

MODELLING THE ARV

Naturally, having ridden in a Centurion ARV I needed no second bidding to make a model from the Airfix Centurion kit. This forms the subject of the pictures and drawings this month, and I think these are comprehensive enough to follow with little more than a few amplifying notes. Although the model is complex in layout, it is an easy one on account of its almost wholly rectangular struc-

Continued on page 213

An F-104A 56-737 with wing-tip Sidewinders, based at Homestead AFB. This photograph, taken in 1964, shows one of the aircraft currently on guard against possible Cuban intruders.

PROFILE

Starfighter—'missile with a man in it'

'MISSILE with a man in it'—this is the billing given to the Lockheed Starfighter. Certainly it has the appearance of a missile, and it has proved to be a highly successful 'automatic aeroplane' barely requiring a man. Designed with outstanding performance for the interceptor role uppermost in mind, the Starfighter has found its application more suitably in the strike or fighter-bomber niche and allied roles, in part because the missile has overtaken it.

Its origin dates back to the early 1950s, when the USAF needed a high-speed fighter able to outclass anything its adversaries were likely to field against it. Many configurations were considered by Lockheed before the long, slender fuselage with its needle nose, knife-edged stubby wings with a 3.4 per cent chord/thickness ratio, twin lateral fuselage intakes to the giant single jet engine aft and the T-tail design were chosen. Two prototypes were ordered in March, 1953, and designated XF-104. Both were fitted with a Wright XJ65-W-6 engine delivering 10,500 lb st with the afterburner in use, and the first, 53-7786, flew on February 9, 1954. The down-swept wings accorded early comment, for they were incredibly thin and at one time the intention was to machine them from solid metal. Because they could accommodate so little, the undercarriage retracted into the fuselage underside, and the long fuselage was clearly necessary to carry fuel in addition to the sophisticated electronic gear demanded.

The second prototype XF-104 attained 1,324 mph (Mach 1.79) during development testing in March, 1955, but already an advanced version was in hand—the YF-104A—of which 15 were ordered in 1954. These were fitted with the more powerful General Electric YJ-79, which obviously needed a greater fuel load and caused the aircraft's fuselage to be lengthened by an additional section added aft of the mainplane. Modifications, in the form of shock forming ramps, were also made at the engine intakes. Later the nosewheel door was changed and made to retract forwards to increase the space available for fuel storage.

The first of the pre-production YF-104As flew in 1955. By now considerable aerodynamic problems associated with the radical design were apparent, and called for a considerably lengthened flight test programme, which the early F-104As joined. 55-2970, the first of them, flew for the first time on February 17, 1956, at Edwards Air Force Base. A ventral fin became a standard modification promoting improved handling at low speeds and high angles of attack. During the extended flight trials all-out performance testing revealed a maximum speed of Mach 2.28 with the afterburner in, and climbs were made to around 70,000 feet. Armament of the F-104A was the Vulcan M-61 20 mm cannon, into which rotated a cluster of six barrels giving a firing rate of 6,000 rpm.

Release to the squadrons, initially to the 83rd Ftr Int Wg at Hamilton AFB near San Francisco, began in January, 1958, but soon after the General Electric J79-GE-3A, with which the F-104As were powered, began to reveal serious troubles, including flame-outs, and in April, 1958, the F-104As were grounded. Before their return to service they were fitted with J79-GE-3B engines in which the troubles had been cured. Delayed, and still unsatisfactory, the F-104As saw limited application in the Air Defence Command of the USAF, principally due to their short range and lack of all-weather capability in regions demanding their opposites.

A new lease of life came years later when F-104As were based in Florida to prevent possible intrusions by Cuban MIGs. These F-104As, used now by the 319th and 331st FISs, carry a Sidewinder on each wing-tip in place of a long-range tank, and were taken from Air National Guard units which had been operating the type. Of the 155 F-104As built, 25 were transferred to Nationalist China and 12 to the Pakistan Air Force. Two dozen of the others were converted into QF-104 pilotless recoverable target aircraft, the first of which flew in November,

1960. Three others, designated NF-104As, were used to train pilots to fly American high-speed research aircraft.

A two-seater trainer version of the Starfighter appeared in 1957 as the F-104B, with the second cockpit placed above the position occupied by the weapons bay in the F-104A. A larger rudder area was found to be necessary. The Air Defence Command, Air National Guard and the Chinese Nationalists have used the 26 built.

More success attended the Starfighter when the F-104C was designed as a day superiority strike and reconnaissance fighter, with in-flight refuelling provision to improve its attack radius. An uprated J79-GE-7 engine was fitted giving up to 15,000 lb thrust using the afterburner. Blown flaps and wing stores attachment points were standard features which could carry bombs, rocket pods or two Sidewinders in addition to those fitted to the wing-tips. Beneath the fuselage a 187-gallon fuel tank could be carried. The maximum speed was little altered. First deliveries were made to the Tactical Air Command on October 16, 1958, but only the 479th Tac Ftr Wg has so far used this version, of which 77 were built. Externally the F-104A and C were very similar and had smaller rudders than the more successful F-104G. A detachable refuelling probe can be fitted on the port side of the nose.

Several F-104Cs have been seen at Armed Forces Day displays in Britain. F-104C-5-LO 56-928A/60928/FG-928 typifies these. It had the usual bright natural finish with olive green anti-dazzle panel and high-gloss white wing upper surfaces, upon which USAF appeared in black. This example came from No 434 TFS, part of the 479th Tac Ftr Wg then based in Spain. On the fin appeared the Tactical Air Command crest against a yellow lightning flash. 60886 and 71332, also from Spain, were seen in June, 1961, in similar markings. The 479th Tac Ftr Wg still uses F-104Cs, of which a two-seater version was produced as the F-104D. This featured the larger rudder of the F-104B, to which it was similar, but for its in-flight refuelling system, J79-GE-7 engine and other detail features of the F-104C. Twenty-two were built and, for the Japanese Defence Force, one as an F-104DJ. Another 19 were built in Japan. Germany acquired 30 F-104Fs, again similar to the F-104D and used as trainers.

Most successful of the Starfighters is the F-104G, similar to the F-104C except for being re-stressed for low-level operations, able to carry a wide assortment of loads necessary for a strike fighter, and fitted with special sophisticated equipment. This includes multi-purpose nose radar, positioned homing indicator and air data and toss bombing computers. Fitted to the F-104G is the larger rudder as developed first for the F-104B. Lockheed

Continued on next page

Above, top to bottom: *Three F-104s, for Germany, the RCAF and Japan. Two F-104Gs of the Luftwaffe. The first prototype Starfighter, the XF-104 53-7786. CF-104 12703 landing, the subject of the Airfix kit.* **Below:** 61-3237, *a Lockheed-built F-104G.*

Top to bottom: 70916 *and* 70912 *of the* 479*th TFW, both* F-104*Cs, refuelling from a* KB-50*J tanker. An* F-104*C Starfighter, its amazingly clean lines well to the fore in this view. Three* F-104*Fs of the Luftwaffe.*

PROFILE—*Continued*

began work upon this new version in 1958 and developed it specially for West Germany. Plans were subsequently agreed for the F-104G to be built by a consortium in Europe, supplying 99 aircraft to Belgium, 604 to Germany, 124 to Holland and 124 to Italy, in addition to aircraft received from Lockheed production. The first of 96 Lockheed-built F-104Gs for the Luftwaffe flew on October 5, 1960. Four Sidewinder missiles are a possible item of armament supplementing the M-61 Vulcan cannon, and elaborate computing devices control the strike profile. The Dutch Air Force flies a reconnaissance version, the RF-104G.

While early aircraft used by the Luftwaffe wore their natural finish, later machines have their upper surfaces camouflaged dark green and dark grey, colours also adopted for the Dutch aircraft. Individual aircraft markings are black, likewise the rims of the air intakes. All colours are glossy.

A simplified version of the F-104G has been projected by Lockheed, designated F-104H, and is suited for regions where less elaborate equipment is desirable. The F-104J, built in Japan and based upon the F-104G, is an interceptor aircraft, although an attack role could doubtless be undertaken by these aircraft.

Airfix have chosen to base their model on the Canadair CL-90 Starfighter, the Canadian version of the F-104G which, as the CF-104, equips eight squadrons of the Royal Canadian Air Force in Europe. This is a strike fighter lacking the interceptor equipment of the F-104G. 12701, the first built, was tested in the USA in 1961. 12703 and '04, the third and fourth aircraft, first flew in August, 1961, powered by the Orenda J79-OEL-7, which offers 15,800 lb when the afterburner is in use. The two-hundredth and last CF-104 was delivered in January, 1964. Canadair has also built F-104Gs, the first of which flew on July 30, 1963. These are for NATO forces, including Denmark, Greece, Norway and Turkey. CF-104D two-seaters were built for the RCAF.

One of the remarkable things about the F-104 is that only six USAF squadrons use it—and nine foreign air forces. That it proved a disappointment to the USAF there can be little doubt, but in the NATO forces it is a highly successful aeroplane.

M. J. F. Bowyer

NEWS FROM IPMS

THE International Plastic Modellers' Society has started 1965 with quite extensive changes in the format of its monthly News-sheet. This has been reduced in size from foolscap to the much more convenient quarto, and it now has printed covers, the front one bearing a photograph. At the same time, the name has been changed from 'News-sheet' to 'IPMS Magazine'. The photograph will be different each month illustrating, during the course of the year, military and civil aircraft of all periods, military vehicles, cars and warships. In addition to all the regular features, sketch pages, etc, there will also be a special article relating to the cover photograph, January for example deals with the Halifax bomber, February with the Sherman tank, and so on.

All this is indicative of the steady growth of IPMS and, in conjunction with the fully illustrated 'Quarterly', the second issue of which has just been circulated to members, the Society is now able to give a very thorough coverage to all the major aspects of plastic modelling in its widest sense.

The London branch held its regular monthly meeting at the Porcupine on Friday, January 29, and it was well attended. Apart from the usual informal model talk, a special session was organised whereby members could voice their complaints to the Executive Committee. Happily, there were no criticisms or complaints at all, although many very useful suggestions and offers of help were forthcoming. The next London meeting, at the Porcupine, is on February 26, at 7.30 p.m. *R.R.W.*

*CF-*104 12766, *of the type currently used by the RCAF in Europe. Note the arrester hook beneath her rear fuselage and the white finish to her wing-top surfaces.*

Front and rear details of the ARV, most of which can be added to the model.

MILITARY MODELLING—*Continued*

ture. Using plan Z with dimensions doubled, build up the central superstructure first to a height of 12 mm above the decking on the hull. The front lies on the knuckle just behind the driver's hatch. Taking the side stowage boxes from plan X, you will find that the tops slope slightly downwards to the outer edges so that the box ends must be cut accordingly. Use the cupola from the kit, cutting off the irregular fairing before cementing in place.

When the towing hawser is led forward it passes through the channel on the superstructure roof, and roller fairleads are provided as guides at the ends. These are shown as dots in plan Z and can be cut, in the model, from plastic bell-wire insulation. On the right-hand side, the stowage boxes are cut away to leave room for the exhaust manifolds of the auxiliary engine which powers the vehicle's electric winch. Bell-wire insulation can be used again here for these exhausts. Small front stowage boxes and open-topped 'ready use' tool boxes at the rear complete the superstructure.

The Centurion ARV is really a 'must' for miniature modern armoured forces as it is policy these days to supply, as far as possible, one troop of recovery vehicles to a tank regiment so that 'lame' or damaged armoured vehicles can be speedily succoured and put back into action. The winch already mentioned is located in the former turret space of the Centurion chassis with the hawser leading out through rollers at the base of the rear superstructure. On the model we don't have to worry about the non-visible winch, but you can use a 3 mm length of insulation to represent the rollers. Depending on the rig of the hawser, the winch can give a pull of anything from 30-90 tons. To provide better purchase on slippery ground, an earth anchor is fitted at the rear (diagrams U and R). This is lowered by hand and hoisted and secured after use by the winch. In the model it can just be cemented in place, unless you are feeling ambitious.

There are two jibs at the rear—a fixed one behind the triangular support (S) cemented at the rear of the engine covers and another on the end of an A-frame above the earth anchor. This latter is *optional* and need not be fitted, though it is shown on the vehicle illustrated and on my model. The two legs on part T are cemented inside the cut-aways on the anchor in model form, though on the real vehicle they are pivoted at this point so that when the anchor is dropped they form a secure ground support, enabling a heavier load to be tackled. Assembly of this fitting takes a good deal of care and I advise beginners to disregard it and just settle for the anchor and inner jib.

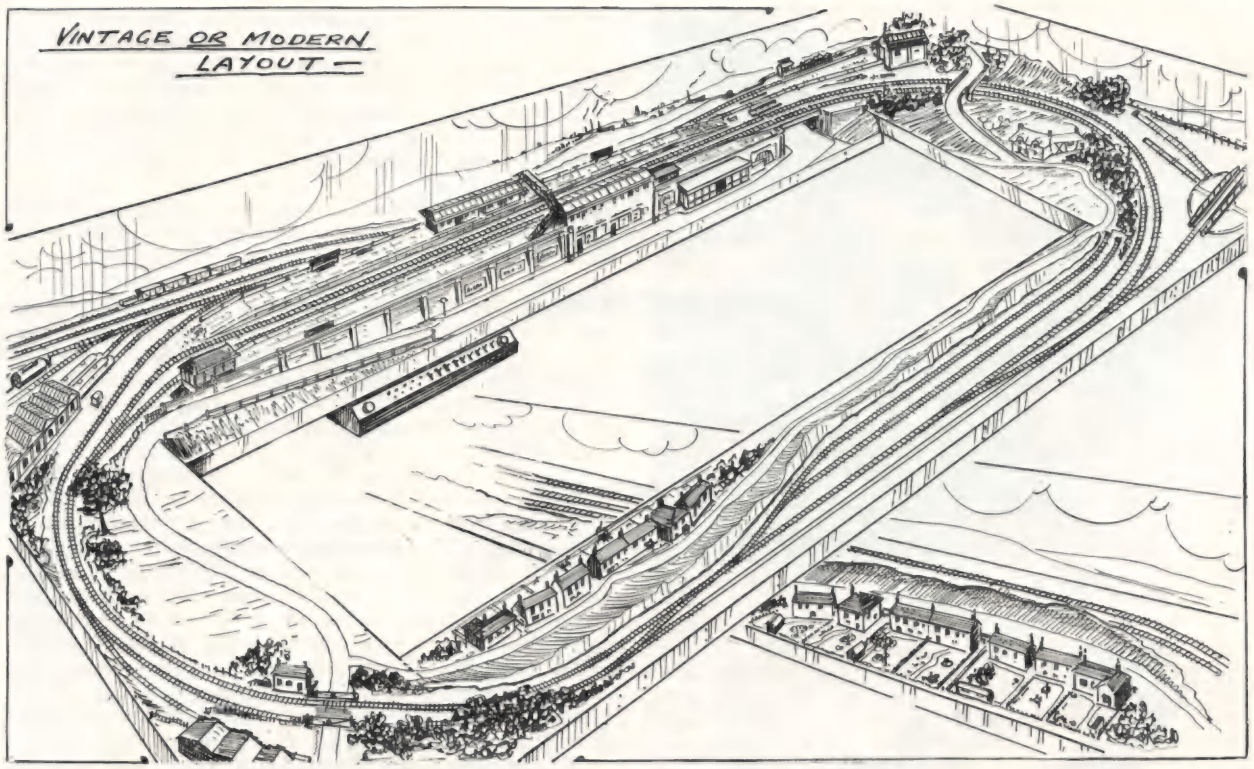
The sheaves on my jibs (and two spare sheaves on the glacis plate) came from a cheap plastic toy salvaged from a Christmas cracker—if you have no suitable spoked wheels of this size, you can get away with plain card discs. One last point concerns the smoke dischargers, front and rear; these are difficult to make so you can always follow my example and fit them with 'waterproof covers'—just tissue over a scrap of plastic!

March date for second Battle of Waterloo

A SECOND Battle of Waterloo, which may well contradict history, is to be fought on March 20, nearly 150 years after the first. 'Napoleon' and 'Wellington' will again direct the opposing divisional generals under their commands, and the battle will take place over the recognisable Waterloo battlefield. Major difference of this 'return match', however, is that all the soldiers will be little over one inch high, fighting on a small-scale terrain.

The battle—thought to be the largest wargame yet—will be the main feature of a day-long Military Festival to be held at the Duke of York's Headquarters, Sloane Street, Chelsea, London, SW3, starting at 11 am on March 20. Entry is free and, in addition to the Waterloo battle, there will be much else to interest the military enthusiast, including a display of modern army equipment, trade stalls selling models, other wargames features, and a small display of the tank conversions which have appeared in recent months in AIRFIX MAGAZINE.

C.O.E.



Above: *The Junior Borchester—a layout for yesterday or today.* **Below, right:** *Plan and detail of road and bridge.*

LAYOUT REALISM

—by Alex Bowie

With it—or agin it?

MOST people have heard of the Design Centre in London's Haymarket. Run by the Council of Industrial Design, it is concerned with showing all aspects of present-day design in industry. It has sent me a Press release headed 'British Rail Exhibition at the Design Centre breaks all attendance records'. This news will also break some hearts, but I don't think we need worry unduly. The interesting thing is that the previous record was in the spring of 1962 when, with practically no advance publicity, *a modern railway* exhibition attracted 75,000 people.

For some time, a persistent band of unofficial undertakers has been presiding at the funeral of British Railways, but they seem to have overlooked the fact that before we have a funeral we must have a corpse.

Recently, and purely by coincidence, I bumped into some young modellers, belonging to what I call the mature schoolboy group. Senior members of a school with a railway club of its own, they are enthusiastic enough to want to expand their activities to outside the school. But I would advise dyed-in-the-wool enthusiasts of the old type not to read further. I cannot be responsible for heart attacks.

Ninety per cent of the school club preferred modern railways, and few seemed inclined to join a local club—one of the minority which caters for juniors—because its policy was, I put it very mildly, not quite in tune with present-day thought. But what is modern thought according to the younger enthusiasts? It was put quite simply by a youngster, who echoed what I wrote three or four years ago in this magazine: 'We want to model what we see'.

There in a nutshell you have it. The ordinary chap of any age is interested in the world around him, and not only that, he is more capable of accurately modelling what he sees than in relying on the research, and sometimes the guesswork, of historians. But though these young chaps want to model what they see, they are urging me to continue with my own antique line, which has been held up a little by urgent work elsewhere.

Thus it seems to me that not only are these youngsters logically minded, they do not possess the ultra-parochial outlook which afflicts too many so-called experienced modellers. In other words, their outlook is more like that of the average *adult*.

The upshot is that my line is being modelled on one side of my shed, and their's on the other. Fortunately the shed is big enough to take the strain, for the time being at least. I have heard the word 'irresponsibility' used a lot in connection with youngsters. But it seems to me that their attitude is considerably more responsible than that of people

who would like to dehydrate the hobby, until nothing is left but a few dried-up relics.

For let's be realistic. When the last steam shed is closed, what will the old-days fanatics have left? A few books, not exactly noted for their unbiased outlook; a few museums; some faded postcards and the unpalatable truth that a mighty concern like a railway can easily survive the pinpricks from a handful of so-called railway enthusiasts.

Now back to the young idea. Their ideas are formulating so rapidly that I could, if I worked until midnight, present them to readers in this issue complete with a highly original, but still authentic, Great Eastern Line circuit. Within a few days of our own meeting they were installed in their new small club-house, had cleared most of its junk out, and completed half of a sound Weyroc-covered baseboard.

But we must not jump the gun, and this month I am presenting a layout which has roughly the same idea behind it. It is a very much simplified version of the Borchester layout, well known to those who have visited the Model Railway Club exhibitions. The builder is Frank Dyer, and I am only too pleased to acknowledge him as the source of inspiration, because he has had the title used by a radio programme, and lifted by other layout builders.

The Borchester is an old established layout, but it is British Railways. Nevertheless, its territory is supposed to be set on the *old* Great Northern Line. In essence, then, it is a model of what the average person can see. I point this out, for we must make a clear distinction between the so-called 'modern image' and the railway as it still exists.

I don't know Mr Dyer's future plans. It may be that the layout will remain in the era familiar to him, where steam predominates and diesels are a mere reinforcement. But the main thing is that almost any layout is flexible as to period, and I chose the Borchester to illustrate this. Firstly, as it is set on the old Great Northern railway, it can be used for that period. Secondly, as it is typical of many present-day railways, it can be used as a British Railways layout, with diesel and steam mixed. Thirdly, if the builder wants to go extra modern, one only remembers that the overall scene remains the same, and only the rolling stock changes. Fourthly, if one goes what the higher-brows call 'modern image', station environs will be rebuilt, but the surrounding land and townscapes stay the same. Modern scenery is still not predominantly supermarkets and power pylons.

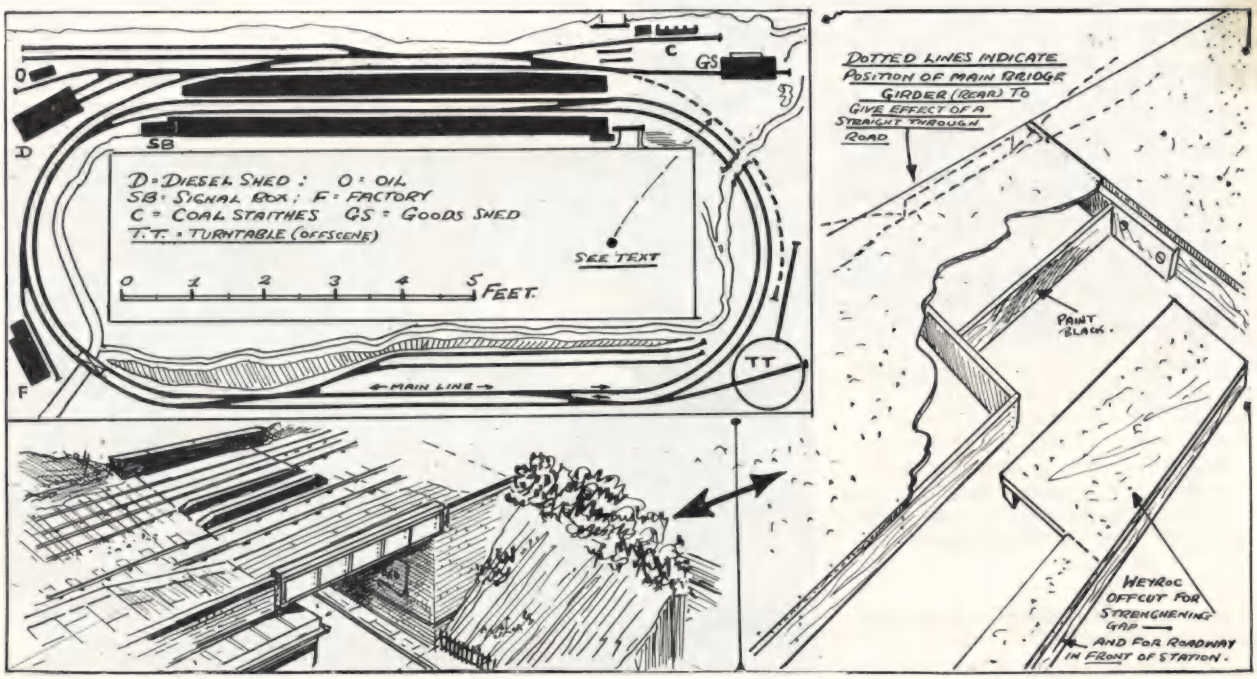
In the case of the latter scheme, the rather heavily handled propaganda in favour of modular buildings has, I must admit, been a little indigestible after years of conditioning to other tastes. But, seen in context, the clean modular outline froms a nice contrast to a good landscape.

I have been asked what modular means. It does not mean modern, and as there seems to be some confusion about this I'll explain: a module is a predetermined unit of measurement. Its actual size has been fixed in the building industry as being four inches or ten centimetres. This means that there can be a wide degree of standardisation in the components of a building, doors, pre-cast units, windows and so on, all being made in a few stock sizes which are multiples of an internationally agreed standard module.

Let's leave the scenic side and have a look at the track layout. This consists of a reasonably comprehensive goods section, though nothing like as ambitious as the original, and has a fiddle yard or storage section to match.

Note that the fiddle section, which also includes part of the main line, is shielded by an embankment and rows of houses. These will be enough to kill the rather bare look of the layout in this area, but will not be so high as to interfere with viewing.

I have put an extra piece of track in dotted lines, the reason being that if this is to handle long freight trains, it can come in handy. But assuming the more popular short trains, I personally would prefer to leave it out. I must acknowledge, before closing, that the station scenic work, though simplified compared to the Borchester, is also inspired by this very workable layout.



The luxury Russian cruise liner IVAN FRANKO (19,860 *tons gross*) *which called at Tilbury a few weeks ago on her maiden voyage from Baltic ports to Odessa.*

SHIPPING NOTES

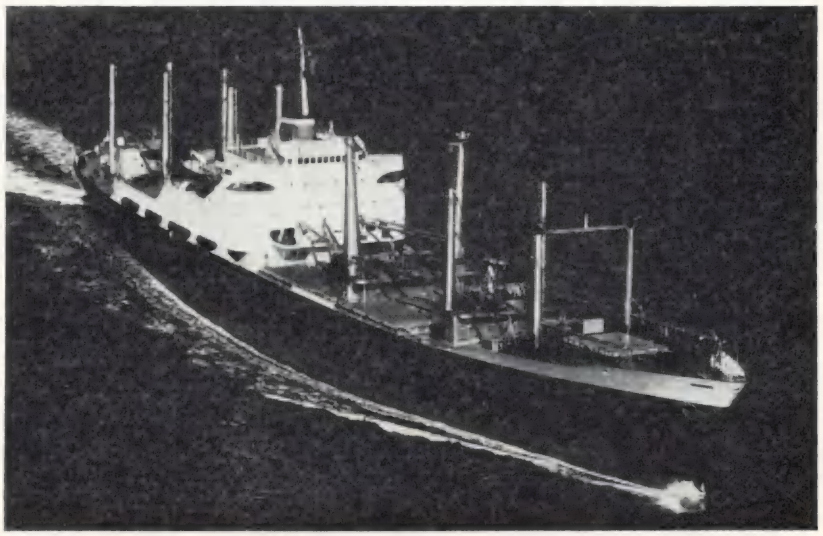
by A. J. Day

SO the new Cunarder is going to be built by John Brown and Co (Clydebank) Limited, as were the *Queen Elizabeth* and *Queen Mary*. This news, announced at the end of 1964, must have warmed the hearts of the Clydesiders, for at the peak period of building the number of men employed on the ship, including sub-contractors, might well exceed 5,000.

AIRFIX MAGAZINE readers will, of course, want to know something of what the ship will be like. Not very much is known at the time of writing; it is believed that, while the hull form has been decided upon, other features of the liner's design, such as the rake of the bow and the funnel form, have not yet been settled, and it may well be six months before an artist's impression is available. However, preparations for the building of the new vessel have already begun and the keel will be laid in mid-summer.

Some of the details already revealed are as follows: At 58,000 tons gross, she will be the largest passenger ship to be built in the United Kingdom since the *Queen Elizabeth* and will be used on Cunard's North Atlantic service and for winter cruising. Her principal dimensions—960 ft in length, 104 ft in breadth moulded, with a summer draught of 31 ft—are such that she will be able to use the Panama Canal and will thus be able to undertake cruising in most parts of the world. The new ship will carry 2,000 passengers in fully air-conditioned accommodation and operate with a crew of under 1,000. A three-class ship, she will be convertible to two-class if required. Lido decks, swimming pools and sport decks will be included in the design, with deck buffets for use when cruising and special launches for taking cruise passengers ashore. The restaurants are to be sited higher in the ship than has normally been the case.

It is thought that the hull of the liner will be the most expensive single hull yet built by any United Kingdom shipyard. Stabilisers will be fitted and light alloys will be used to a large extent in place of steel for the superstructure. One funnel will be fitted. 'Number 736', as she is known in the yard, will be powered by Pametrada steam turbines to be built by John Brown's which will give the ship a service speed of 28½ knots. There will be extensive engine-room automation. The 'Q4' is expected to be launched in late 1966 and delivered in time for the 1968 season. The *Queen Mary* is to continue in service until then.



The ss AMERICAN RACER (13,000 *tons dw), the most highly-automated ship yet built in the States.*

Soviet cruise ship

IN December last, the Russian passenger liner *Ivan Franko* (19,860 tons gross) called at Tilbury on her maiden voyage taking 750 cruise passengers around Europe from Baltic ports to Odessa, her port of registry. She was built by Mathias-Thesen Werft, Wismar, East Germany, the

first of a series of six passenger liners to be constructed there for Soviet Steamship Lines, Odessa. The *Ivan Franko* has a length of 578 ft 1 in and a breadth of 77 ft 5 in, and her cruising speed is 20 knots. She can accommodate 750 passengers and carry 1,500 tons of cargo and up to 30 cars.

The fully air-conditioned passenger accommodation comprises one-, two- and four-berth cabins, the single and double rooms on the boat deck and the promenade deck aft having showers and toilets. The saloon deck is devoted to public rooms. Towards the stern are the hairdressing shops and a large swimming pool with the Arcadia Bar adjoining.

At the stern of the promenade deck is a smaller pool for children and a children's playroom. The restaurant is on the main deck amidships; it occupies the complete width of the ship and seats 376 passengers. (With so many bars and cafés, one would imagine that our Communist friends are just about as decadent as we in the West!) The *Ivan Franko* is propelled by two Sulzer diesel engines, type 7RD76, built in the Netherlands by de Schelde, each developing 10,500 bhp at 119 rpm, and controlled from a central console in the fore part of the engine-room.

New livery for BR

MODELLERS interested in British Railways' ships will, no doubt, have attended the exhibition entitled 'The New Face of British Railways', which was held in January at the Design Centre in London. The purpose of the exhibition was to launch British Railways' new corporate identity programme. It publicised the new two-way arrow symbol, the trade name 'British Rail' and the new 'monastral' blue, quiet grey and flame-red house colours which are to be used at stations, on trains and ships and on printed material, catering equipment and furnishings. For ships, the grey has now been changed to white, a better colour in periods of bad visibility.

Among the items displayed was a large model of the Heysham-Belfast passenger steamer *Duke of Lancaster* in the new colours. Already many of the BR fleet of more than 100 ships have been repainted in the new livery; the remainder will be finished by the middle of this year. The superstructures are decked out in white. The double-arrow symbol is painted in white on the flame-red funnels and is also featured on the house-flags. The hulls have been changed from drab black to 'monastral' blue. Lifeboats are painted white. So, modellers, out with those paints and bring your collections up to date.

Top: *The steam turbine tanker* OTTAWA (89,000 *tons dw*). *At the time of her launching she was the largest tanker ever to be put into the water from a UK yard.* **Above:** *BR's cross-Channel steamer* AVALON *in the new livery. The hull is of 'monastral' blue, the upperworks white, and the funnel flame red, incorporating the new two-way arrow emblem, with black top.*

Highly-automated US cargo ship

IN London recently on her maiden voyage was the most highly-automated ship yet built in the United States, the steam turbine cargo vessel *American Racer* (13,000 tons dw), built for the United States Lines Company, New York, by the Sun Shipbuilding and Dry Dock Company, Chester. She has a length oa of 544 ft, a moulded breadth of 75 ft and a moulded depth of 46 ft 6 in. The ship is designed to accommodate more than 200 cargo containers in the holds and on the weather deck. An automatic ventilating and humidity control system is provided for the cargo spaces, which include also refrigerated space and stainless-steel and plastic-lined tanks for liquid cargo.

The propulsion units consist of main driving turbines of the single-plane design, rated at 18,750 shp with throttle conditions of 840 psig and 900 deg Fahr. The automation system for the control of the propulsion plant consists of a bridge console, which contains only the essential displays and a single operating wheel to manoeuvre the ship and communicate with the engine-room, and an engine-room console, the heart of the system, which centralises normal watch duties by displaying on the data logger all the required information.

RN order new vessels

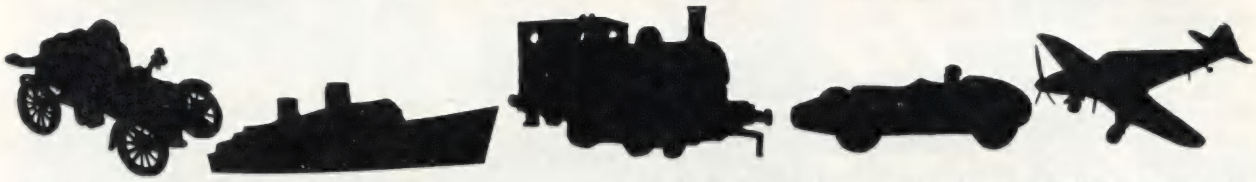
SEVERAL orders have recently been placed for new ships by the Royal Navy. Three stores support ships have been ordered from Swan, Hunter and Wigham Richardson Ltd, Wallsend-on-Tyne. It is the intention of the company to build one vessel on the Clyde at the works of their associates, Barclay, Curle and Co Ltd, and two ships on the Tyne. All three ships will be fitted with Sulzer-type main machinery manufactured under licence by the Wallsend Slipway and Engineering Co Ltd.

Fairfield Shipbuilding and Engineering Co Ltd, Glasgow, and Swan, Hunter and Wigham Richardson Ltd, have each received an order for the construction of a guided missile destroyer of the County class. The total value of these orders is £15m. Four County-class destroyers are already in service with the Royal Navy and two others which have already been launched are nearing completion.

Three new Leander-class frigates are to be built for the Navy Department of the Ministry of Defence, two by the Clyde firms of Alexander Stephen and Sons Ltd, and Yarrow and Co Ltd. The third ship is to be built in the Royal Dockyard at Portsmouth. These vessels are valued at about £5m each.

Leander-class frigates were also in the news recently with the laying of the keel of HMS *Danae* at Devonport Dockyard and with the launch of HMS *Minerva*, which is under construction at the Walker yard of Vickers - Armstrongs (Shipbuilders) Ltd.

New kits and models



SABRE SUPERIOR

THE latest release from Marusan, the Japanese manufacturers, is an F-86D Sabre and, to date, this is the best kit they have produced. Although the more moderate modeller may flinch at the 24s 6d asked for this kit, those who do venture a purchase will not be disappointed with what they find. All control surfaces, rudder, ailerons, elevators and wing slats are movable. The undercarriage retracts and the canopy opens, the radar nose cone is removable, as is the rear fuselage which comes away to reveal a detailed replica of the F-86D's engine. In addition, the fuselage rocket pack slides down from its housing and there's a servicing trolley complete with rockets to go beside it. Other features are three mechanics, a pilot, and trolleys for both the engine and rear fuselage when these are removed.

The scale of this very accurate model is 1:50, and it comprises 133 parts. All these are a reasonable fit, but the model maker will want to add just a little care to the assembly because the price of the model will make him careful about finishing detail. I found that there was a fair amount of 'flash'—more than on most kits of this size—and its removal became rather tedious, especially on the smaller parts.

BMW Models of Wimbledon supplied our sample and market the Marusan F-86D. I can recommend its purchase without hesitation to the quarter-scale enthusiast. *A.W.H.*

TOO MANY ZEROS?

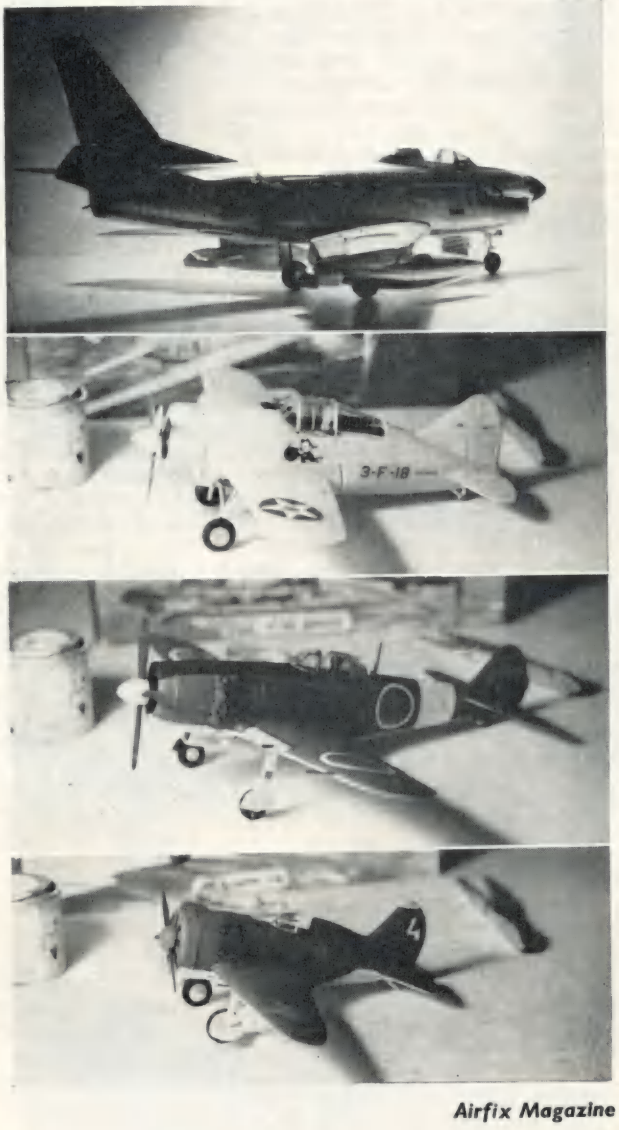
I THOUGHT at one time that the Spitfire or perhaps the Kittyhawk was the aircraft which all good manufacturers could not resist, but with the latest release from 'LS', the Japanese manufacturer, I'm beginning to wonder. Their latest is yet another A6M5 Zero, which makes one more to add to the impressive list of Revell, Lindberg, Airfix, Monogram and Frog versions of this aircraft.

Criticism of this aspect aside, I found the 'LS' Zero an excellent model. It is, I would say, the best for detail of all of the near 1:72 scale issues, and has a retracting undercarriage, movable canopy, optional bomb or long-range tank and workable control surfaces. The price is 6s 11d from BMW Models of Wimbledon, who have imported this 35-part kit which is to an accurate 1:75 scale. *A.W.H.*

REVELL TRIO

OF the three recent models to 1:72 scale released by Revell, I found the Nakajima Ki84-1A Frank the most interesting and satisfying to make. Of the other two, a Polikarpov I-16 and a Brewster F2A Buffalo, one can be equally enthusiastic, my own choice is merely personal preference.

Each of the three will be welcome additions to the 1:72 collection, as they have not been produced in this scale by any other manufacturer. They are well up to the Revell tradition of value for money and accuracy of detail. For



Right, top to bottom: *Marusan F-86D (from BMW Models) and new Revell trio—Brewster F2A Buffalo, Nakajima Ki84-1A 'Frank' and Polikarpov I-16.*

example, each kit has the engine separate from the cowling, a practice which I find most useful for conversion and, although there are very few gimmicks on any of them, I am sure they will prove popular with model makers in this country.

Both the instruction sheets and the transfers are excellent, and at 2s 11d each these kits cannot fail to attract strong sales. *A.W.H.*

1:32 SCALE COOPER-FORD

MONOGRAM have joined the ranks of 1:32 scale car kit manufacturers with a model of the Cooper Monaco fitted with a Ford engine, as raced by Carroll Shelby in the States. The first and most obvious advantage of the Monogram kit is the inclusion of rubber tyres. They make the model so much more realistic and, as the kit is also designed for slot racing, so very practical, too. Apart from this one highly commendable feature, there are many other attractions, such as chrome wheels, carburettor unit, exhaust stacks and lamp lenses, etc, and moulded clear plastic windscreen and headlight covers. The latter fit particularly well.

The one-piece body is cleanly and accurately moulded in light blue plastic. Very little finishing is required, even to the several open air cooling vents that are featured on the body and wheel spats. I am not terribly happy with one-piece plastic axles, but in this case they revolve reasonably well and they appear to be strong enough.

Excellent instructions—such a desirable feature of Monogram kits—include both photographic and line drawing illustrations covering every possible aspect of construction. Painting details and useful prototype information are also included. Lastly, a comprehensive range of racing numbers transfers completes the attractive appearance of the model. The kit can be obtained from BMW Models of Wimbledon and is thoroughly recommended at 13s 6d. *N.S.*

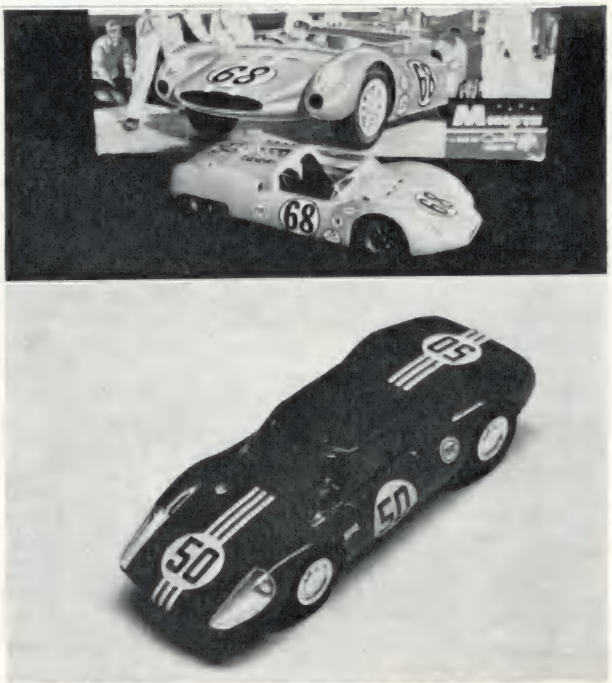
WINNINGEST GT

ANOTHER of the new 1:32 scale Monogram kits supplied to us for review by BMW Models is the Porsche 904 GTS, 'one of the winningest GTs in racing events' as the box-lid loudly reminds us. This one is moulded in light silver-grey and chrome plastic, and makes up very well into a first-class model. The general body shape in particular is superb, the Porsche's styling being a tricky thing to reproduce at all accurately. There are 47 parts in all and assembly is very straightforward.

All windows are included in one moulding and the whole piece is cemented up under the roof. This obviates the danger of 'burning' the exposed parts of the 'glass'. Another single-piece moulding is the interior 'bucket', which includes seats, floor and interior door trim, and looks most realistic when in place. Other features of this fine kit are rubber tyres, plated lights, racing mirror, shaped transparent headlight covers and a colourful eight-item transfer sheet. Extra parts are included to help convert the car to a slot-racer. Price of this very fine miniature is 13s 6d. *D.C.N.*

FESTINIOG FAIRLIE

JUST over a year ago, we received from George Mellor the first batch of his narrow gauge models (to a scale of 5½ mm to the foot) to run on 12 mm gauge track, and we said how much we looked forward to further developments from him. As we forecast, he has not rested on his laurels, and in due course along came his *piece de resistance*, a kit to the same scale for a model of the famous Double Fairlie, the prototype of which is happily still running today on the rejuvenated Festiniog Railway.



New 1:32 *scale Monogram kits of a Cooper Monaco Ford and Porsche* 904 *GTS (both from BMW Models).*

Narrow gauge modellers have always hankered after a kit of this lovely loco, and a very impressive model it makes. With full authentic detail, the completed job is six inches long and weighs 13 ounces! It would be wrong to say that this kit falls together; it needs care and thought in assembly, and perhaps should not be recommended for a first attempt at cast metal kit assembly, but it is certainly not a difficult job suitable only for the experts.

The amount of 'flash' is not great, but time spent in removing what little there is with a sharp knife, a scraper and a file is amply repaid in the look of the finished model, as the photograph shows. The cast parts fit together well, but be very careful that none of the components has become distorted, either in transit or by heavy-handedness in assembly. As with all fairly complex kits, it is best to have a dry-run without cement before assembly proper. This will not only familiarise you with the general layout, but will also show up any small bits of 'flash' which you may have overlooked in the preliminary clean-up. The instruction sheet, which is comprehensive and has some good exploded diagrams, should be read several times, and the parts described should be identified as you go along. Any glue which will give a thin joint can be used—we used Uhu, but Britfix 66 or Glooit are also recommended.

The drive employed is particularly interesting, because the Fairlie is notoriously difficult to motorise, with its two pivoted power bogies. The Lone Star motor and the Lone Star system of rubber band drive to all four axles is used and, frankly, when we first heard it, we doubted the efficacy of this method of powering the loco. However, we must admit freely to having to eat our words; the exceptional weight of the finished loco and the robustness of the

Continued on next page

motor produce a wonderfully powerful and smooth-running model.

The assembly of the wheels and the motion is one of the most difficult stages in the whole job. In particular we found the slots in the crossheads needed appreciable deepening to allow them to slide freely in the slide bars. The instructions speak of using cement to glue on the retaining washers on the crank pins; frankly, we were sceptical of this method and resorted to the use of a soldering iron here but, if you do the same, take heed of the warning in the instructions—the connecting rods and the coupling rods are in cast metal and one slip with a hot iron and you will be cutting new ones from sheet nickel silver!

The method of current collection is simple in the extreme, each bogie being a different polarity and there being no collectors as such. The only soldering needed in the kit is to fix leads from the bogie pivots to the motor brushes. This is a superb kit which, with a little care, produces a wonderful model. *M.B.*

FORTIFICATIONS

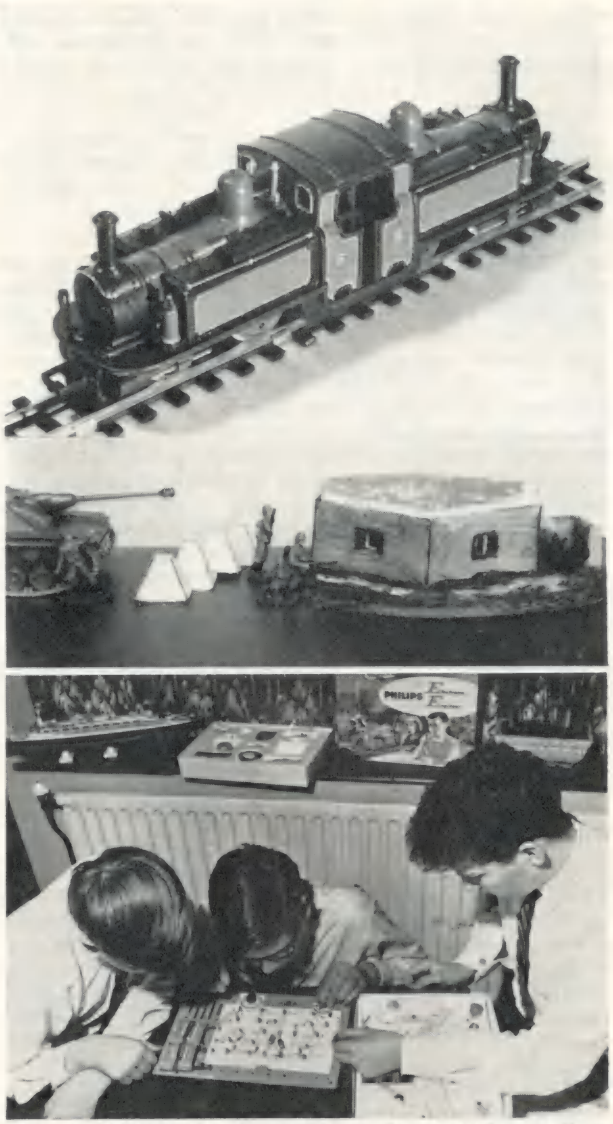
LATEST releases in the Bellona range are 1:76 scale replicas of a concrete pill-box and 'Dragon's Teeth' anti-tank obstacles. The six-sided miniature pill-box has all the features of the full-size structure, including loopholes in every face and a protected entrance. These openings are, in fact, covered by a thin web of rubber, which we found could be cut away easily with a craft knife to leave actual apertures. The model is hollow, so that soldiers can be accommodated inside. Price is only 2s. 'Dragon's Teeth' are concrete blocks used to impede the progress of enemy tanks and transport along roads or battle approaches. As produced by Bellona, they are moulded in strips of four, which can be used as supplied, or else cut into individual pieces as in the photograph. These cost 9d for a strip of four, but can also be had in a set of three complete strips for 2s. Postage is extra, and the models are only obtainable by post, from Merbelen Ltd, Badgers Mead, Hawthorn Hill, Bracknell, Berks. All Bellona models are supplied unpainted, but can be easily finished with ordinary water-colours. The makers say that these latest additions are among those specially requested by AIRFIX MAGAZINE readers. *C.O.E.*

ELECTRONICS WIZARDRY

THE more technically minded of our readers—particularly the budding electronic engineers—will be interested in an absorbing new series of 'kits with a difference', made by Philips Electrical Ltd. For 99s 11d you can buy a basic Electronic Engineer kit EE8, which enables eight basic items to be constructed, including transistor radios, morse trainer, automatic night light, gramophone amplifier and burglar alarm.

An add-on kit A20 costs 69s 6d and enables 13 more gadgets to be built. One is an electronic organ, and there is also an intercom with a listen and talk switch, an acoustic relay which flashes an alarm if a sound is made near the device, and a more advanced burglar alarm and time switch. All component parts in any experiment can be dismantled and used over again. A 100-page book supplied with the kits gives an introduction to the theory of electronics, so that even those with no previous understanding of the technicalities can quite easily develop an interest and carry out all the applications, and also experiment to his own choice.

Having examined these kits in some detail, we can vouch for their quality and simplicity, yet complete effectiveness. *D.R.*



Top to bottom: *GEM model of the Festiniog Railway Double Fairlie; latest Bellona releases are Dragon's Teeth tank obstacles (left) and concrete pill-box, seen here with Airfix figures to show scale; a two-way intercom being built from one of the Philips Electronic Engineer kits.*

CONTINENTAL APPROACH

GLANCING at the new 1964/1965 Fleischmann HO catalogue, it is no wonder that more and more railway modellers are going Continental. The 72 pages are crammed full of details of an amazing range of locomotives, coaches, wagons, track and operating accessories. As an instance, there are no less than nine different steam locos, ten diesel locos and ten electric locos, representing the railways of Germany, France, Belgium, Holland, Italy, Switzerland, Sweden and even the USA.

It's a pity that our own review copy was written in German, but an English version will be available shortly, price 2s 6d. This is something more than just a catalogue, since a great deal

Continued on page 223

Letters to the Editor

Letters to the Editor can only be answered in the magazine. Readers whose letters are published each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters column.

Centurion markings

HAVING just finished making the Airfix Centurion tank, I am left with one question—where do the regimental insignia and Armoured Divisional signs go? The instructions put the Divisional signs on the front offside and the insignia on the front nearside on the track covers; the sketch shows the opposite; and the cover illustration shows them to be on either side of the numbers on the lower hull front.

Also, could Airfix please include in their kits tank crew members, as these add more interest?

A. Sticklee, Worthing Sussex.

C. O. Ellis writes: 'This has confused a number of readers. Correct positions are: formation sign on the nearside, front and rear, and RAC (red and yellow) flashes on the offside, front and rear. These are carried either on the dustguards or on the lower hull front. At the rear, in addition, there should be a 'convoy panel' of four white and three black vertical stripes, painted just below the engine vent. Positions of the signs at the rear vary. Some Cenurions have just the formation sign alone, often painted on one or other of the small stowage boxes. The small white bar above the RAC flash carries the name of the regiment in abbreviated form, eg 2 RTR.

A two-figure serial number (eg 63), differing for each unit, is usually painted on the RAC flash.'—Ed.

Centurion tip

WHERE your contributor C. O. Ellis advised tissue paper as a mantlet cover on the Centurion, I used a piece of nylon stocking, and also rolled up squares of stocking and cemented them round the tops of the stowage bins to represent the camouflage netting. After painting and fixing two pieces of 30 amp fuse wire in position as aerials, the completed model, thanks to Airfix and the fine detail, puts the Centurion to the front of any display. Thank you Airfix.

R. S. Gray, Sandwich, Kent.

Night fighter camouflage

IN reply to W. Ridgway's letter in the November issue of AIRFIX MAGAZINE, night fighters, intruder bombers and night bombers of the 1942-43 period were camouflaged a deep purple or dirty green shade on upper surfaces and dark grey underneath.

Some night-flying machines were coated overall in a special matt black paint. This paint could be easily removed, revealing the original day camouflage.

S. C. Harper, Norwich, Norfolk.

Ship slip-up

I HAVE been reading your magazine for the past several years, and I am well pleased with it. It is a shame that there is nothing like it in this country.

I am interested in model ships, having built most of the US-made kits and several of the early Airfix imports, such as HMS *Tiger, Hood* and *Nelson*. The quality of the kits is very good and the selection of subjects outstanding. I also congratulate Airfix on the variety and number of kits released each month. There has not been a new ship kit released by an American concern in over a year. All we have had are new box tops and different names, but the same basic ships. I might add that the Airfix *Queen Elizabeth, France* and *Scharnhorst* have just been released in this country.

According to 'Janes Fighting Ships' and several other publications, HMS *Tiger* is described as having four shafts. Your model has only two. Could you please clarify this? My only criticism of Airfix ships is that the scale used makes the cruisers and destroyers small.

For those that may be interested, there is an international organisation called the Naval Records Club, devoted exclusively to naval enthusiasts. It was organised in January of last year and has grown very quickly. I joined in June and have been well pleased with their monthly publication. For information, address Edward C. Fisher, 726 North Reynolds Road, Toledo, Ohio, 43615, USA.

Allan C. Harris, Toledo, Ohio, USA.

C. O. Ellis writes: 'Mr Harris is right, Tiger-class ships do have four shafts—we hadn't noticed! Sticklers for accuracy will have to remedy this on their models.'—Ed.

German advantage

I MUST differ with reader Wainwright on the point of German infantry inferiority in the August, 1964, issue of AIRFIX MAGAZINE, and must defend Mr Retford's statement in the July issue. Mr Retford said that the German infantry is provided with much better weapons than the British Group. He does not mention the items available in the Fighting Vehicles series, while Mr Wainwright bases his assumption upon the British artillery available in this series. However, if the artillery is disregarded, the Germans have a tremendous advantage. They have 2 to 1 advantage in sub-machine guns, 2 to 0 in Panzerschrecken (the Airfix designation of Panzerfaust is incorrect), and 1 light cannon to the British 0. The only redeeming factor for the British is one extra grenade, but this does little good against German cannon.

Turning to the artillery the 25 pounder was not an infantry weapon, and the 6 pounder became one only in 1944, the anti-tank regiments re-equipping with the 17 pounder. The

Continued on next page

Letters to the Editor

Continued

German infantry division often contained an assault gun unit, to be used as mobile artillery and A-T units. I do not see how the 57 mm 6 pounder can be considered a match for a mobile 75 mm German assault gun.

Finally, may I say I enjoy AIRFIX MAGAZINE very much, and add to your now huge suggestions list? I should like to see a Panzer IV and Cromwell. In addition, some light tanks might be produced, such as the Stuart or Panzer II, and armoured scout cars would certainly be welcome. Another point thus far overlooked is German artillery. With the 25 pounder and 6 pounder supplying Allied fire support, surely the famous '88' dual-purpose, or 75 mm anti-tank gun, not to mention the little 'Quad' 20 mm, could be produced.

William Young, New Orleans, La, USA.

Wheels within wheels

PERHAPS the following tip may be of use to modellers. Model railway rolling stock plastic wheels, thinned and with the flanges filed off make excellent artillery (and other vehicle) wheels. Disc would be usual, but spoked and holed (naval guns) have their uses. These wheels are usually in plentiful supply as railway modellers often prefer to fit metal ones.

J. Burrows, Southall, Middlesex.

'Undisciplined' soldiers

JANUARY'S article on modelling the 8th Army highlighted a very real want for me, which by now must have come to wide attention. I have over 70 boxes of Airfix soldiers—not one of which will either submit willingly to surgery and glue or to any form of paint which I have found. It would appear that at least part of this problem is not confined solely to those of us in the colonies, for my children's soldiers (of a different make) quickly flake of their paint in handling. Could the present flexible plastic be replaced with a polystyrene or similar material which is compatible to surgery and paint? This would not only aid the modeller but makes it sensible to buy several of each kind for conversion.

I, for one, would be glad to pay a premium for such a material and would happily replace all my figures. Such a change would be far more welcome to me than even the sudden release of Cavalry sets for six different historic periods.

In regard to your magazine, I look forward to it with enthusiasm each month. C. O. Ellis's articles are of particular interest, especially now that the photographs have been improved.

As a further suggestion for the manufacturers, how about a kit of spare parts for ship conversions such as the *Hotspur* article in June? A set of rafts, depth charge mortars and throwers, racks of charges, mines, sweeping gear, various tuple torpedo tubes, davits for the aforementioned, and anti-aircraft guns from .5 to 3 inch with mounts or gun tubs could give us all reason to buy a dozen *Hotspurs* and the like rather than a mere one or two.

Rather than receiving a free kit if any of this is published, I would prefer to hear that I could purchase the soldiers in polystyrene.

Frank R. Keller, Massachusetts, USA.

Sorry to hear of your troubles, Mr Keller. Perhaps other readers can suggest a remedy.—Ed.

Ground control figures

HERE is a way I used to make ground control marshals from Airfix OO scale figures that should interest P. Barleggs (January issue).

Almost any Airfix figure can be used as long as it has two free hands. All that has to be done is to cement two small circles of card, one on each hand. These are then painted with Humbrol fluorescent flame red paint. By using different figures, marshals in many poses can be obtained.

Now that Airfix 1.12 scale figures have been modernised, how about a model of Sir Winston Churchill in that series? As for new aircraft, may I suggest models of modern lightplanes such as Pipers or Cessnas?

Thanks for the newly published catalogue; I am looking forward to making the Ju 52!

C. J. Houseman, London, SE12.

Air-sea rescue by USAF Whirlwind

Reader A. Dodsworth, of Hull, sent us three excellent 'air-to-air' pictures of model aircraft. We chose this one, showing a motorised Airfix Westland Whirlwind finished in USAF markings.

Pen-friends wanted

THE following readers have written to the Editor requesting pen-friends. A. V. Norris, of 5 Rectory Close, Surbiton, Surrey, wants to correspond with someone in Germany or Austria, aged 14 or over, who is interested in British and German aircraft and who is willing to exchange kits and photographs. Anthony Jilley, of 87 Bedford Crescent, Stockbridge, Edinburgh 4, Scotland, would like an American or Canadian pen-friend aged 16, who would like to exchange models of all kinds. Guy M. Shear (13), of 39 McCreery Road, Sherborne, Dorset, would like to correspond with someone his own age in Canada, Australia or America, who is interested in World War 2 and modern aircraft, and plastic modelling. Kiyotaka Hayakawa (16), of 41 Ichome Motoyama-Cho, Chikusa-Ku Nagaya, Aichi, Japan, would like to correspond and exchange kits with American or English modellers who are interested in planes—especially World War 2 and jet planes. Robert Baker, of 94 Whitehart Lane, Collier Row, Romford, Essex, wants pen-pals in New Zealand, Canada and Germany, aged about 13, who are interested in model railways, plastic modelling and coin collecting. Interested readers are invited to establish contact direct, at the addresses given.

of prototype information is included, and there are hundreds of illustrations, mostly in full colour. The catalogue can be obtained from the sole UK Fleischmann distributors, M & R (Model Railways) Ltd, 309 Meanwood Road, Leeds 7. *N.S.*

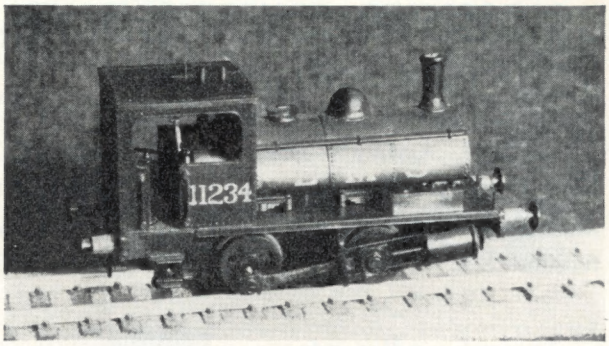
MODELLING MATERIALS

IN our January issue, we made reference to the new range of Polycard styrene sheet and transparent Model Glazing available from B. J. Ward Ltd. The transparent material is now also obtainable in a pack of three sheets, each 5 inches × 7 inches, to a thickness of 0.010 inch, price 1s 6d. For some reason, there appears to have arisen confusion over the details of the Polycard we published in January. For the record, there are three different 10½ inch × 9 inch packs, each selling at 2s 6d. One contains one sheet only of .04 inch card, another contains two sheets of .025 inch and the third has four sheets of .01 inch. Packs of assorted thicknesses are not available. All the materials are obtainable from most model shops, or direct from B. J. Ward Ltd, 130 Westminster Bridge Road, London, SE1. *D.R.*

MODEL RAILWAY MARKINGS

THE Model Railway (Mfg) Company Ltd, who have recently opened their new shop at 14 York Way, London, N1 (just by the side of Kings Cross station) are introducing several new items of interest to railway modellers.

One of the most welcome is a new and comprehensive range of Letraset 4 mm scale model railway lettering and lining. The first items in the series include several sizes and styles of GWR and LMS lettering, and orange and black



An Airfix 'Pug' de-nationalised with the use of Letraset from the Model Railway (Mfg) Co Ltd.

lining for BR or GWR locomotives. Corners and GWR tender shapes are also available. Prices are very reasonable, ranging from 3½d per set for the GWR tender lining shapes to 1s 9d per pair for 'Great Western' in gold-shaded red and black.

Letraset lettering and lining is simple to fix, and there is none of the mess, as with the varnish-fixing variety. An example of one of the LMS styles, which cost 7d per pair plus 7d for a pair of numbers from 0 to 9 inclusive, can be seen from the illustration of the de-nationalised 'Pug' illustrated this month.

Full details will be forwarded on receipt of a SAE or by personal callers at the shop at Kings Cross. We will be giving more news of new Model Railway (Mfg) Company Ltd items next month. *N.S.*

ARE YOU A KIT CONVERTER?

We have many letters from readers requesting back copies of AIRFIX MAGAZINE containing conversion articles. Back copies of most issues are still available for the benefit of readers who may have missed or mislaid earlier editions. For example, here are some of the practical articles which featured in the 1964 issues alone

January—Motorising Airfix Prairie loco, and Panther tank conversions. **February**—Airfix Swordfish and Scarab conversions. **March**—Conversions with Airfix HMS *Warspite*. **April**—Converting Airfix Hurricane and Stalin tank. **May**—Conversions from the Airfix assault gun. **June**—A Gauntlet from the Airfix Gladiator. **July**—Morris trucks from Airfix 'Quads'. **August**—Converting the Airfix Hunter and HMS *Hotspur* kits. **September**—Motorising the Airfix Saddle Tank. **October**—Converting the Airfix Ju88. **November**—Conversions with the Airfix Centurion. **December**—Carrier conversions and Catalina Profile.

Would readers please note that the following issues are now out of print: all 1960 *editions; January, April, May and June,* 1961*; April and October,* 1962*; September, October, November and December,* 1963.

Back copies cost 1s 6d each (including postage) for all issues up to and including August, 1963. From September, 1963, onwards, the cost is 2s per issue, post paid. Please address all requests for back copies, together with your remittance, to our circulation department at SURRIDGE, DAWSON (PRODUCTIONS) LTD, 136/142 NEW KENT ROAD, LONDON SE1.

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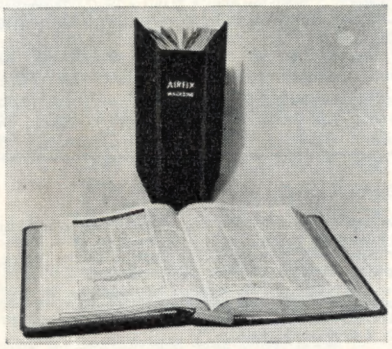
FOR SALE: Modellers, aircraft enthusiasts—Send for list (1s) of aircraft photographs, plus free sample. GEMINI-FOTOS, 1 Copland Place, Tile Hill, Coventry.

WANTED: Information on RAF/RN flying boats and floatplanes, 1930-1945. S. C. Reglar, Brookdown, Arun Close, Amberley, Sussex.

WANTED: Airfix Magazines 1960-1963. State price. Seton, 12 The Butts, Westbury, Wilts.



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TT 14mm., 15mm., 18mm., 20mm.
OO 15mm., 18mm., 21mm., 24mm., 26mm.
Plain TT **1/5** each, OO **1/5** each.
Flangeless TT **1/11½** each, OO **1/11½** each.
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Insulated flangeless TT **4/4½** each, OO **4/4½** each.
Axles: TT **1/5** each, OO 16.5mm. **1/5**, 18mm. **1/6½**.
Axles extended for outside frame locos: TT **1/7**, OO **1/7** each.

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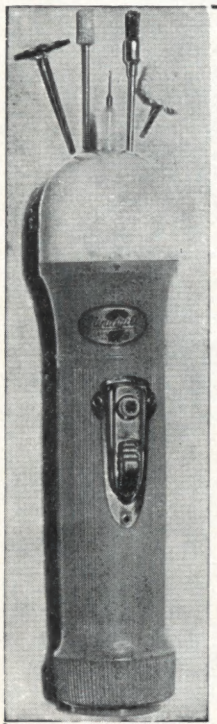

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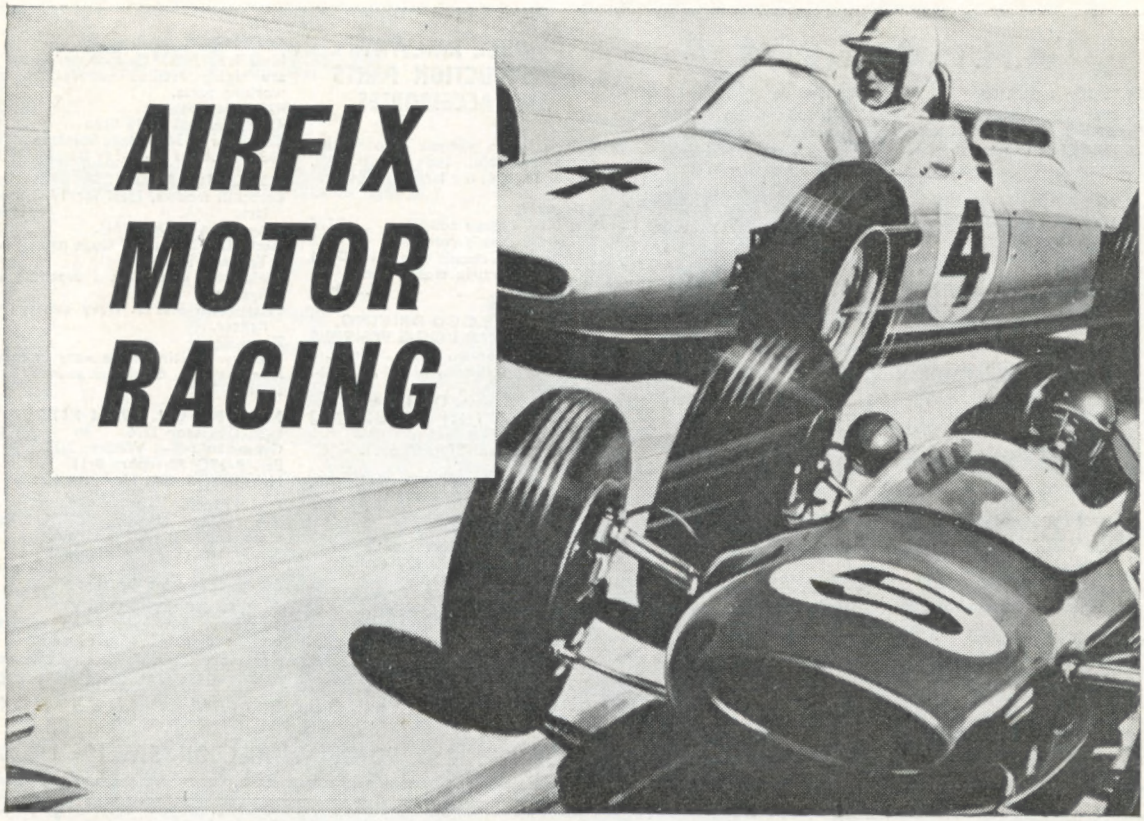

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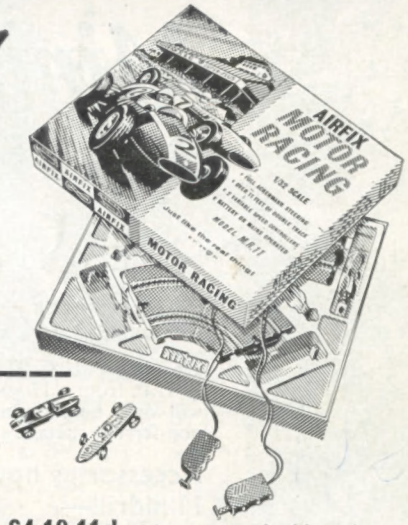

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